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DEPARTMENT OF TRANSPORTATION

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RULES AND REGULATIONS

FOR

TANK VESSELS

AUGUST 1, 1977

CG-123

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FOR

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DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

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FOREWORD

This edition of "Rules and Regulations for Tank Vessels" (CG-123) replaces the previous edition dated 1 January 1973, and is a direct reprint of Parts 30-40 of Title 46 of the Code of Federal Regulations. The CFR text of 1 October 1976, has been updated in this publication by inclusion of amendments to the regulations published in the Federal Register since that date. Pollution prevention regulations contained in Parts 151-159 of Title 33 are included as an appendix.

In applying these regulations to merchant vessels certain factors have to be considered, among which are the size of the vessel, the services in which the vessel is engaged, and the waters upon which the vessel is operated. In this regard, shipowners, operators, builders, vessels' operating personnel and other persons affected by the navigation and vessel inspection laws should familiarize themselves with the regulations contained in this pamphlet.

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CONTROL SHEET FOR CHANGES

Federal Register date	Section No.	Subject

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CONTENTS

Subchapter D - Tank Vessels

Part		Page
30	General provisions	3
31	Inspection and certification	17
32	Special equipment, machinery, and hull requirements	36
33	Lifesaving equipment	65
34	Firefighting equipment	88
35	Operations	107
36	Elevated temperature cargoes	133
37	Special construction, arrangement, and other provisions for nuclear vessels	134
38	Liquefied flammable gasses	137
39	Flammable or combustible liquids having lethal characteristics	151
40	Special construction, arrangement, and other provisions for carrying certain flammable or combustible dangerous cargoes in bulk	154

APPENDIX

Pollution Prevention Regulations (33 CFR, Subchapter O) 171
Index 221

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RULES AND REGULATIONS

FOR TANK VESSELS

SUBCHAPTER D—TANK VESSELS

Part		*Page*
30	General provisions	3
31	Inspection and certification	17
32	Special equipment, machinery, and hull requirements	36
33	Lifesaving equipment	65
34	Firefighting equipment	88
35	Operations	107
36	Elevated temperature cargoes	133
37	Special construction, arrangement, and other provisions for nuclear vessels	134
38	Liquefied flammable gases	137
39	Flammable or combustible liquids having lethal characteristics	151
40	Special construction, arrangement, and other provisions for carrying certain flammable or combustible dangerous cargoes in bulk	154

SUBCHAPTER D—TANK VESSELS

PART 30—GENERAL PROVISIONS

Subpart 30.01—Administration

Sec.

30.01-1 Purpose of regulations.

30.01-3 Assignment of functions—TB/ALL.

30.01-5 Application of regulations—TB/ALL.

30.01-6 Application to vessels on an international voyage.

30.01-7 Ocean or unlimited coastwise vessels on inland and Great Lakes Routes—TB/OC.

30.01-10 Application of regulations governing alterations or repairs—TB/ALL.

30.01-15 Effective date of regulations—TB/ALL.

30.01-20 Portable tanks—interpretive rulings—TB/ALL.

Sec.

30.01-25 Application to vessels concerning nuclear energy—TB/ALL.

Subpart 30.10—Definitions

30.10-1 Definition of terms—TB/ALL.

30.10-2 Accommodation space—TB/ALL.

30.10-3 Approved—TB/ALL.

30.10-5 Cargo—TB/ALL.

30.10-5a Cargo area—TB/ALL.

30.10-5b Cargo control station—TD/ALL.

30.10-6 Cargo handling room—TB/ALL.

30.10-6a Category A machinery space—TB/ALL.

30.10-7 Certificated—TB/ALL.

30.10-9 Classification requirements—TB/ALL.

30.10-11 Coastwise—TB/C.

30.10-13 Cofferdam—TB/ALL.

30.10-14 Combination carrier—TB/ALL.

Sec.

30.10-15 Combustible liquid—TB/ALL.
30.10-17 Commandant—TB/ALL.
30.10-19 Coast Guard District Commander—TB/ALL.
30.10-19a Control space—TB/ALL.
30.10-20 Deadweight or DWT—TB/ALL.
30.10-21 Flammable or inflammable—TB/ALL.
30.10-22 Flammable liquid—TB/ALL.
30.10-23 Flame arrester—TB/ALL.
30.10-25 Flame screen—TB/ALL.
30.10-27 Flashpoint—TB/ALL.
30.10-29 Gas free—TB/ALL.
30.10-31 General rules and regulations—TB/ALL.
30.10-33 Great Lakes—TB/L.
30.10-35 Headquarters—TB/ALL.
30.10-37 Keel laying date—TB/ALL.
30.10-38 Lightweight—TB/ALL.
30.10-39 Liquefied flammable gas—TB/ALL.
30.10-41 Lakes, bays, and sounds—TB/B.
30.10-42 Machinery space—TB/ALL.
30.10-43 Marine inspector or inspector—TB/ALL.
30.10-44 Nuclear energy, radioactive material, and nuclear vessel—TB/ALL.
30.10-45 Ocean—TB/O.
30.10-47 Officer in Charge, Marine Inspection—TB/ALL.
30.10-48 Oil fuel—TB/ALL.
30.170-48a Oil fuel unit—TB/ALL.
30.10-49 Permit—TB/ALL.
30.10-55 Pressure vacuum relief valve—TB/ALL.
30.10-57 Recognized classification society—TB/ALL.
30.10-59 Reid vapor pressure—TB/ALL.
30.10-61 Rivers—TB/R.
30.10-62 Rules of the Road—TB/ALL.
30.10-62a Service spaces—TB/ALL.
30.10-63 Spark arrester—TB/ALL.
30.10-65 Tank barge—B/ALL.
30.10-67 Tankship—T/ALL.
30.10-69 Tank vessel—TB/ALL.
30.10-71 Tankerman—TB/ALL.

Subpart 30.15—Equivalents

30.15-1 Conditions under which equivalents may be used—TB/ALL.

Subpart 30.20—Enforcement and Rights of Appeal

30.20-1 Enforcement—TB/ALL.
30.20-10 Penalties for violations of tank vessel regulations—TB/ALL.
30.20-50 Right of appeal—TB/ALL.

Subpart 30.25—Commodities Regulated

30.25-1 Commodities regulated by Subchapter D.
30.25-5 Commodities regulated by Subchapter O of this chapter.

AUTHORITY: Sec. 201, 86 Stat. 427 (46 U.S.C. 391a), R.S. 4472, as amended (46 U.S.C. 170). Sec. 6(b)(1), 80 Stat. 937 (49 U.S.C. 1655(b)(1); 49 CFR 1.46(b) and (o)(4), 46 U.S.C. 375, 416; 49 CFR 1.46(b) and (A)(4), unless otherwise noted.

SOURCE: The provisions of this Part 30 contained in CGFR 65-50, 30 F.R. 16657, Dec. 30, 1965, unless otherwise noted.

NOTE: 33 CFR Part 157 contains additional design, equipment, and operation requirements for certain seagoing U.S. tank ships and barges that carry oil in the United States domestic trade.

Subpart 30.01—Administration

§ 30.01-1 Purpose of regulations.

(a) The rules and regulations in this subchapter are prescribed for all tank vessels in accordance with the intent of the various statutes administered by the Coast Guard and to provide for a correct and uniform administration of the vessel inspection requirements applicable to tank vessels.

[CGFR 68-82, 33 F.R. 5712, Apr. 12, 1968]

§ 30.01-3 Assignment of functions—TB/ALL.

(a) The Department of Transportation Act (Public Law 89-670, 80 Stat. 931-950, 49 U.S.C. 1651-1659), transferred to and vested in the Secretary of Transportation "* * * all functions, powers, and duties, relating to the Coast Guard, of the Secretary of the Treasury and of other officers and offices of the Department of the Treasury" (subsection 6(b)(1), 49 U.S.C. 1655(b)). This transfer is subject to certain conditions, modifications, and exceptions as set forth in such act. By a rule in 49 CFR 1.4(a) the Secretary of Transportation delegated to the Commandant, U.S. Coast Guard, authority to exercise certain functions, powers, and duties as set forth in subsections 6(a)(4), 6(b)(1), and 6(g) of such act (49 U.S.C. 1655), subject to conditions, exceptions and modifications as described in 49 CFR Part 1. By a rule in 49 CFR 1.9 the Secretary of Transportation continued in effect actions taken prior to April 1, 1967.

(b) The Commandant, U.S. Coast Guard, in a notice dated March 31, 1967, and effective April 1, 1967 (32 F.R. 5611), approved the continuation of orders, rules, regulations, policies, procedures, privileges, waivers, and other actions, which had been made, allowed, granted, or issued prior to April 1, 1967, and provided that they shall continue in effect according to their terms until modified, terminated, repealed, superseded, or set aside by appropriate authority.

[CGFR 68-82, 33 F.R. 5712, Apr. 12, 1968]

§ 30.01-5 Application of regulations—TB/ALL.

(a) The regulations in this subchapter contain requirements for materials, design construction, inspection, manning, and operation of tank vessels, including handling and stowage of cargo and duties of officers and crew. However, vessels certificated as passenger, cargo or miscellaneous vessels, where the principal purpose or use of the vessel is not for the carriage of flammable or combustible liquid cargo in bulk, may be granted a permit to carry limited quantities of flammable or combustible liquid cargo in bulk in the grades indicated:

(1) Passenger vessels:

(i) Grade E in an integral tank, in a portable tank approved under Subpart 98.35 of this chapter, or in a marine portable tank approved under Part 64 of this chapter.

(ii) Grade D in a portable tank in accordance with Part 146 of this chapter.

(2) Cargo vessels:

(i) Grades D and E in an integral tank, in a portable tank approved under Subpart 98.35 of this chapter, or in a marine portable tank approved under Part 64 of this chapter.

(ii) Dangerous articles in a portable tank in accordance with Part 146 of this chapter, or in a marine portable tank approved for the article under Part 64 of this chapter.

(3) Miscellaneous vessels, such as cable, salvage, pile driving, and oil drilling rig vessels:

(i) Grades B and lower in a fixed independent or an integral tank authorized by the Commandant.

(ii) Grades D and E in a portable tank approved under Subpart 98.35 of this chapter, or in a marine portable tank approved under Part 64 of this chapter.

(iii) Dangerous articles in a portable tank in accordance with Part 146 of this chapter, or a marine portable tank approved for the article under Part 64 of this chapter.

(b) The requirements of this subchapter are divided into parts as follows:

(1) Inspection and certification.

(2) Special equipment, machinery, and hull requirements.

(3) Lifesaving appliances.

(4) Firefighting equipment.

(5) Operations.

(6) Elevated temperature cargoes.

(7) Liquefied flammable gases.

(8) Flammable or combustible liquids having lethal characteristics.

(9) Special construction, arrangement, and other provisions for carrying certain flammable or combustible dangerous cargoes in bulk.

(c) The vessels and services to which each regulation applies are indicated by letters in the heading of the section or paragraph. The first letter or two letters indicate the type of vessel and the letter or letters following the oblique line indicate the waters in which such vessels may operate. These letters are described as follows:

(1) "T" signifies a tankship.

(2) "B" signifies a tank barge when it precedes an oblique line; or it signifies service on bays, sounds, and lakes other than the Great Lakes when it follows an oblique line.

(3) "ALL" signifies service on all waters.

(4) "O" signifies service on ocean waters.

(5) "C" signifies services on coastwise waters.

(6) "L" signifies service on Great Lakes' waters.

(7) "R" signifies service on river waters.

(d) This subchapter shall be applicable to all United States flag vessels indicated in Column 3 of Table 30.01-5(d), except as follows:

(1) Any vessel operating exclusively on inland waters which are not navigable waters of the United States.

(2) Any vessel while laid up and dismantled and out of commission.

(3) With the exception of vessels of the U.S. Maritime Administration, any vessel with title vested in the United States and which is used for public purposes.

(e) This subchapter shall be applicable to all foreign flag vessels carrying combustible or flammable liquid cargo in bulk while in the navigable waters over which the United States has jurisdiction, except that:

(1) A vessel of a foreign nation signatory to the International Convention for Safety of Life at Sea, 1960, which has on board a current valid Safety Equipment Certificate, or a vessel of a foreign nation having inspection laws approximating those of the United States, together with reciprocal inspection arrangements with the United States and which has on board a current valid certificate of inspection issued by its government under such arrangements, in either

TABLE 30.01-5(d)

Method of propulsion	Size or other limitations [1]	Classes of vessels (including motorboats) examined or inspected under various Coast Guard regulations [1]					
		Vessels inspected and certificated under Subchapter D—Tank Vessels [2]	Vessels inspected and certificated under either Subchapter H—Passenger Vessels [2 3 4 5] or Subchapter T—Small Passenger Vessels [2 3 4]	Vessels inspected and certificated under Subchapter I—Cargo and Miscellaneous Vessels [2 5]	Vessels subject to provisions of Subchapter C—Uninspected Vessels [2 3 6 7 8]	Vessels subject to provisions of Subchapter U—Oceanographic Vessels [2 5 6 7 9]	Vessels subject to the provisions of Subchapter O—Certain Bulk Dangerous Cargoes [10]
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Steam	Vessels not over 65 feet in length.	All vessels carrying combustible or flammable liquid cargo in bulk.	All vessels carrying more than 6 passengers.[7]	All tugboats and towboats.	All vessels except those covered by columns 3, 4, 5, and 7.	None	None.
	Vessels over 65 feet in length.	All vessels carrying combustible or flammable liquid cargo in bulk.	1. All vessels carrying more than 12 passengers on an international voyage, except yachts. 2. All vessels of not over 15 gross tons which carry more than 6 passengers.[7] 3. All other vessels carrying passengers,[7] except: a. Yachts. b. Documented cargo or tank vessels issued a permit to carry not more than 16 persons in addition to the crew. c. Towing and fishing vessels, in other than ocean and coastwise service, may carry persons on the legitimate business of the vessel, in addition to crew, but not to exceed one for each net ton of the vessel.	All vessels except those covered by columns 3 and 4.	None	All vessels engaged in oceanographic research.	None.

Motor	Vessels not over 15 gross tons.	All vessels carrying combustible or flammable liquid cargo in bulk.	All vessels carrying more than 6 passengers.[7]	Those vessels carrying dangerous cargoes when required by 46 CFR Part 98 or 146.	All vessels except those covered by columns 3, 4, 5, and 7.	None	None.
	Vessels over 15 gross tons except seagoing motor vessels of 300 gross tons and over.	All vessels carrying combustible or flammable liquid cargo in bulk.[5]	1. All vessels carrying more than 12 passengers on an international voyage, except yachts. 2. All vessels not over 65 feet in length which carry more than 6 passengers.[7] 3. All other vessels of over 65 feet in length carrying passengers for hire except documented cargo or tank vessels issued a permit to carry not more than 16 persons in addition to the crew.	All vessels carrying freight for hire except those covered by columns 3 and 4.	All vessels except those covered by columns 3, 4, 5, and 7.	None	None.
	Seagoing motor vessels of 300 gross tons and over.	All vessels carrying combustible or flammable liquid cargo in bulk.[6]	1. All vessels carrying more than 12 passengers on an international voyage, except yachts. 2. All other vessels carrying passengers,[7] except: a. Yachts. b. Documented cargo or tank vessels issued a permit to carry not more than 16 persons in addition to the crew.	All vessels except those covered by columns 3 and 4, and those engaged in the fishing, oystering, clamming, crabbing, or any other branch of the fishery, kelp, or sponge industry.	All vessels except those covered by columns 3, 4, 5, and 7.	All vessels engaged in oceanographic research.	None.
Sail	Vessels not over 700 gross tons.	All vessels carrying combustible or flammable liquid cargo in bulk.	All vessels carrying more than 6 passengers.[7]	Those vessels carrying dangerous cargoes when required by 46 CFR Part 98 or 146.	None	None	None.
	Vessels over 700 gross tons.	All vessels carrying combustible or flammable liquid cargo in bulk.	All vessels carrying passengers for hire.	Those vessels carrying dangerous cargoes when required by 46 CFR Part 98 or 146.	None	None	None.

See footnotes at end of table

TABLE 30.01-5(d)—Continued

Method of propulsion	Size or other limitations [1]	Classes of vessels (including motorboats) examined or inspected under various Coast Guard regulations [1]					
		Vessels inspected and certificated under Subchapter D—Tank Vessels [2]	Vessels inspected and certificated under either Subchapter H—Passenger Vessels [2 3 4 5] or Subchapter T—Small Passenger Vessels [2 3 6]	Vessels inspected and certificated under Subchapter I—Cargo and Miscellaneous Vessels [2 5]	Vessels subject to provisions of Subchapter C—Uninspected Vessels [2 3 6 7 8]	Vessels subject to provisions of Subchapter U—Oceanographic Vessels [2 5 6 7 9]	Vessels subject to the provisions of Subchapter O—Certain Bulk Dangerous Cargoes [10]
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
Non-self-propelled.	Vessels less than 100 gross tons.	All vessels carrying combustible or liquid cargo in bulk.	Those vessels carrying dangerous cargoes when required by 46 CFR Part 146.	Those vessels carrying dangerous cargoes when required by 46 CFR Part 98 or 146.	All barges carrying passengers except those covered by column 4.	None	All tank barges [11] carrying certain flammable and combustible liquids and liquefied gases in bulk.
	Vessels 100 gross tons or over.	All vessels carrying combustible or flammable liquid cargo in bulk.	All seagoing barges except those covered by columns 3 and 4; and those inland barges carrying dangerous cargoes when required by 46 CFR Part 146.	All seagoing barges except those covered by columns 3 and 4; and those inland barges carrying dangerous cargoes when required by 46 CFR Part 98 or 146.	All barges carrying passengers except columns 4 and 7.	All seagoing barges enaged in oceanographic research.	All tank barges [11] carrying certain flammable and combustible liquids and liquefied gases in bulk.

[1] Where length is used in this table it means the length measured from end to end over the deck, excluding sheer. This expression means a straight line measurement of the overall length from the foremost part of the vessel to the aftermost part of the vessel, measured parallel to the centerline.

[2] Subchapters E (Load Lines), F (Marine Engineering), J (Electrical Engineering), and N (Dangerous Cargoes) of this chapter may also be applicable under certain conditions. The provisions of 46 U.S.C. 170 and Subchapter N (Dangerous Cargoes) of this chapter apply whenever explosives or dangerous articles or substances are on board vessels (including motorboats), except when specifically exempted by law.

[3] Public nautical schoolships, other than vessels of the Navy and Coast Guard, shall meet the requirements of Part 167 of Subchapter R (Nautical Schools) of this chapter. Civilian nautical schoolships, as defined by 46 U.S.C. 1331, shall meet the requirements of Subchapter H (Passenger Vessels) and Part 168 of Subchapter R (Nautical Schools) of this chapter.

[4] Subchapter H (Passenger Vessels) of this chapter covers only those vessels of 100 gross tons or more. Subchapter T (Small Passenger Vessels) of this chapter covers only those vessels of less than 100 gross tons.

[5] Vessels covered by Subchapter H (Passenger Vessels) or I (Cargo and Miscellaneous Vessels) of this chapter, where the principal purpose or use of the vessel is not for the carriage of liquid cargo, may be granted a permit to carry a limited amount of flammable or combustible liquid cargo in bulk. The portion of the vessel used for the carriage of the flammable or combustible liquid cargo shall meet the requirements of Subchapter D (Tank Vessels) in addition to the requirements of Subchapter H (Passenger Vessels) or I (Cargo and Miscellaneous Vessels) of this chapter.

[6] Any vessel on an international voyage is subject to the requirements of the International Convention for Safety of Life at Sea, 1960.

[7] The meaning of the term "passenger" is as defined in the Act of May 10, 1956 (Sec. 1, 70 Stat. 151; 46 U.S.C. 390). On oceanographic vessels scientific personnel on board shall not be deemed to be passengers or seamen, but for calculations of lifesaving equipment, etc., shall be counted as persons.

[8] Boilers and machinery are subject to examination on vessels over 40 feet in length.

[9] Under 46 U.S.C. 441 an "oceanographic research vessel" is a vessel "* * * being employed exclusively in instruction in oceanography or limnology, or both, or exclusively in oceanographic research, * * *." Under 46 U.S.C. 443, "an oceanographic research vessel shall not be deemed to be engaged in trade or commerce." If or when an oceanographic vessel engages in trade or commerce, such vessel cannot operate under its certificate of inspection as an oceanographic vessel, but shall be inspected and certificated for the service in which engaged, and the scientific personnel aboard then become persons employed in the business of the vessel.

[10] Bulk dangerous cargoes are cargoes specified in Tables 30.25-5 and 151.01-10(b) of this chapter.

[11] For manned tank barges see § 151.01-10(e) of this chapter.

case, shall be subject only to the requirements of § 35.01-1 and the safety and cargo handling requirements in Subparts 35.30 and 35.35 of this subchapter. In addition, these vessels shall report marine casualties, hazardous materials incidents and the unintentional release of hazardous materials occurring while the vessel is in the navigable waters of the United States, as required by Subpart 35.15 of this subchapter and §§ 2.20-65 and 2.20-70 of this chapter.

(f) Notwithstanding the exceptions previously noted in paragraph (e) of this section, foreign vessels of novel design or construction, or whose operation involves potential unusual risks, shall be subject to inspection to the extent necessary to safeguard life and property in United States ports, as further provided by § 2.01-13 of Subchapter A (Procedures applicable to the Public) of this chapter.

(g) Manned barges carrying any of the cargoes listed in Table 30.25-5 will be considered individually by the Commandant and may be required to comply with the requirements of Subchapter O of this chapter, as applicable, as well as the requirements of this subchapter.

[CGFR 65-50, 30 F.R. 16657, Dec. 30, 1965, as amended by CGFR 67-83, 33 F.R. 1106, Jan. 27, 1968; CGFR 70-10, 35 F.R. 3707, Feb. 25, 1970; CGFR 69-106a, 35 F.R. 16834, Oct. 31, 1970; CGD 73-172, 39 FR 22949, June 25, 1974]

§ 30.01-6 Application to vessels on an international voyage.

(a) Except as provided in paragraphs (b), (c), and (d) of this section, the regulations in this subchapter that apply to a vessel on a "international voyage" apply to a vessel that—

(1) Is mechanically propelled and of at least 500 gross tons; and

(2) Is engaged on a voyage—

(i) From a country to which the International Convention for Safety of Life at Sea, 1960, June 17, 1960, 16 U.S.T. 185, TIAS 5780, 536 UNTS 27 (SOLAS 60) applies, to a port outside that country or the reverse;

(ii) From any territory, including the Commonwealth of Puerto Rico, the Canal Zone, all possessions of the United States, and all lands held by the United States under a protectorate or mandate, whose international relations are the responsibility of a contracting SOLAS 60 government, or which is administered by the United Nations, to a port outside that territory or the reverse; or

(iii) Between the contiguous states of the United States and the states of Hawaii or Alaska or between the states of Hawaii and Alaska.

(b) The regulations that apply to a vessel on an "international voyage" in this subchapter do not apply to ships engaged on a voyage solely on the Great Lakes and the St. Lawrence River as far east as a straight line drawn from Cap des Rosiers to West Point, Anticosti Island and, on the north side of Anticosti Island, the 63rd Meridian;

(c) The Commandant or his authorized representative may exempt any vessel on an international voyage from the requirements of this subchapter if the vessel—

(1) Makes a single international voyage in exceptional circumstances; and

(2) Meets safety requirements prescribed for the voyage by the Commandant.

(d) The Commandant or his authorized representative may exempt any vessel from the construction or lifesaving requirements of this subchapter if—

(1) The vessel does not proceed more than 20 miles from the nearest land in the course of its voyage; and

(2) The Commandant determines that the conditions of the voyage render the application of the full lifesaving requirements unreasonable or unnecessary.

[CGD 72-131R, 38 FR 29320, Oct. 24, 1973]

§ 30.01-7 Ocean or unlimited coastwise vessels on inland and Great Lakes Routes—TB/OC.

(a) Vessels inspected and certificated for ocean or unlimited coastwise routes shall be considered suitable for navigation insofar as the provisions of this subchapter are concerned on any inland route, including the Great Lakes.

§ 30.01-10 Application of regulations governing alterations or repairs—TB/ALL.

When major alterations or major repairs of tank vessels become necessary the work shall be done under the direction of the Officer in Charge, Marine Inspection, and shall be in accordance with the regulations in effect for new construction insofar as possible. When minor alterations or minor repairs of tank vessels become necessary such work shall be under the direction of the Officer in Charge, Marine Inspection, and shall be in accordance with the regulations in effect at the time the vessel

was contracted for or built, or in accordance with the regulations in effect for new construction insofar as possible.

§ 30.01–15 Effective date of regulations—TB/ALL.

(a) The regulations in this subchapter are effective on and after November 10, 1936: *Provided,* That amendments, revisions, or additions shall become effective ninety (90) days after the date of publication in the FEDERAL REGISTER unless the Commandant shall fix a different time.

(b) The regulations in this subchapter are not retroactive in effect unless specifically made so at the time the regulations are issued. Changes in specification requirements of articles of equipment, or materials used in construction of tank vessels, shall not apply to such items which have been passed as satisfactory until replacement shall become necessary, unless a specific finding is made that such equipment or material used is unsafe or hazardous and has to be removed from tank vessels.

§ 30.01–20 Portable tanks—interpretive rulings—TB/ALL.

(a) The phrase "drums, barrels, or other packages," as used in R.S. 4417a, as amended (46 U.S.C. 391a), and in R.S. 4472, as amended (46 U.S.C. 170), is interpreted to mean portable tanks having a maximum capacity of 110 U.S. gallons and Department of Transportation specification cylinders having a water capacity of not more than 1,000 pounds, which are actually loaded and discharged from vessels with their contents intact.

(b) The phrase "inflammable or combustible liquid cargo in bulk" as used in R.S. 4417a, as amended (46 U.S.C. 391a), and in R.S. 4472, as amended (46 U.S.C. 170), is interpreted to include such cargo in portable tanks of a capacity of more than 110 U.S. gallons.

(c) The phrase "liquid cargo" as used in R.S. 4417a, as amended (46 U.S.C. 391a), is interpreted to mean flammable or combustible liquids.

(Interpret or apply R.S. 4472, as amended; 46 U.S.C. 170) [CGFR 69–72, 34 F.R. 17480, Oct. 29, 1969]

§ 30.01–25 Application to vessels concerning nuclear energy—TB/ALL.

(a) Pertinent definitions are in § 30.10–44.

(b) Special provisions for "nuclear vessels" are in Part 37 of this subchapter.

(c) The regulations covering the transportation and handling of radioactive materials as cargo are in Part 146 of Subchapter N (Dangerous Cargoes) of this chapter.

(d) The regulations covering pressure-containing portions of nuclear vessel systems are in Part 55 of Subchapter F (Marine Engineering) of this chapter. See § 56.04–20 of Subchapter F (Marine Engineering) of this chapter for nuclear piping. See Subpart 61.25 of Subchapter (Marine Engineering) of this chapter for requirements regarding periodic tests and inspections of nuclear reactor power plants.

[CGFR 68–82, 33 F.R. 18304, Dec. 18, 1968]

Subpart 30.10—Definitions

§ 30.10–1 Definition of terms—TB/ALL.

Certain terms used in the regulations in this subchapter are defined in this subpart.

§ 30.10–2 Accommodation space—TB/ALL.

The term "accommodation space" means any public space such as a hall, dining room, mess room, lounge, corridor, lavatory, cabin, office, hospital, cinema, game and hobby room, pantry that contains no cooking appliances, and a similar space open to the passengers and crew.

(46 U.S.C. 375, 416; E.O. 11239 (30 FR 9671)) [CGD 74–127, 41 FR 3842, Jan. 26, 1976]

§ 30.10–3 Approved—TB/ALL.

The term "approved" means approved by the Commandant unless otherwise stated.

§ 30.10–5 Cargo—TB/ALL.

The term "cargo" means combustible liquid, flammable liquid, or liquefied flammable gas unless otherwise stated.

§ 30.10–5a Cargo area—TB/ALL.

The term "cargo area" means that part of a vessel that includes the cargo tanks and other tanks into which cargo or cargo vapors are intentionally introduced, holds containing these tanks, all intervening space within, between, below, or outboard of these tanks or holds, and the deck area over the length and beam of the vessel above these tanks, holds, or spaces.

(46 U.S.C. 375, 416; E.O. 11239 (30 FR 9671)) [CGD 74–127, 41 FR 3842, Jan. 26, 1976]

§ 30.10–5b Cargo control station—TB/ALL.

The term "cargo control station" means a location that is manned during

cargo transfer operations for the purpose of directing or controlling the loading or unloading of cargo.

(46 U.S.C. 375, 416; E.O. 11239 (30 FR 9671))
[CGD 74–127, 41 FR 3842, Jan. 26, 1976]

§ 30.10–6 Cargo handling room—TB/ALL.

The term "cargo handling room" means any enclosed space where cargo is pumped, compressed, or processed. Examples of "cargo handling rooms" are pump rooms, compressor rooms, and cargo valve rooms.

[CGFR 68–65, 33 F.R. 19983, Dec. 28, 1968]

§ 30.10–6a Category A machinery space—TB/ALL.

The term "Category A machinery space" means any space and trunks and ducts to such a space that contains—

(a) internal combustion machinery used for main propulsion;

(b) internal combustion machinery used for purposes other than main propulsion where the total aggregate power is at least 500 brake horsepower;

(c) internal combustion machinery that uses a fuel that has a flash point of less than 43.3°C (110°F); or

(d) one or more oil fired boilers or oil fuel units.

(46 U.S.C. 375, 416; E.O. 11239 (30 FR 9671))
[CGD 74–127, 41 FR 3842, Jan. 26, 1976]

§ 30.10–7 Certificated—TB/ALL.

The term "certificated" when applied to tank vessels refers to a vessel covered by a certificate of inspection issued by the Coast Guard; when applied to men employed on tank vessels, the term refers to a certificate of ability issued by the Coast Guard.

§ 30.10–9 Classification requirements—TB/ALL.

The term "classification requirements" means applicable rules and supplementary requirements of the American Bureau of Shipping, or other recognized classification society.

§ 30.10–11 Coastwise—TB/C.

Under this designation shall be included all tank vessels normally navigating the waters of any ocean or the Gulf of Mexico 20 nautical miles or less offshore.

§ 30.10–13 Cofferdam—TB/ALL.

The term "cofferdam" means a void or empty space separating two or more compartments for the purpose of isolation or to prevent the contents of one compartment from entering another in the event of the failure of the walls of one to retain their tightness.

§ 30.10–14 Combination carrier—TB/ALL.

The term "combination carrier" means a tank vessel designed to carry alternatively liquid and solid cargoes in bulk.

(46 U.S.C. 375, 416; E.O. 11239 (30 FR 9671))
[CGD 74–127, 41 FR 3843, Jan. 26, 1976]

§ 30.10–15 Combustible liquid—TB/ALL.

The term "combustible liquid" means any liquid having a flashpoint above 80° F. (as determined from an open-cup tester, as used for test of burning oils). Combustible liquids having lethal qualities are those having the characteristics of class "B" or "C" poisons as defined in §§ 146.25–10 and 146.25–15 of Subchapter N (Dangerous Cargoes) of this chapter. In the regulations of this subchapter, combustible liquids are referred to by grades, as follows:

(a) *Grade D.* Any combustible liquid having a flashpoint below 150° F. and above 80° F.

(b) *Grade E.* Any combustible liquid having a flashpoint of 150° F. or above.

§ 30.10–17 Commandant—TB/ALL.

The term "Commandant" means the Commandant of the Coast Guard.

§ 30.10–19 Coast Guard District Commander—TB/ALL.

The term "Coast Guard District Commander" means an officer of the Coast Guard designated as such by the Commandant to command all Coast Guard activities within his district which include the enforcement and administration of Title 52, R.S., acts amendatory thereof or supplemental thereto, rules and regulations thereunder and the inspections required thereby.

§ 30.10–19a Control space—TB/ALL.

The term "control space" means an enclosed space in which is located a ship's radio, main navigating equipment, or emergency source of power or in which is located centralized fire recording or fire control equipment, but not including firefighting apparatus that must be located in the cargo area or

individual pieces of firefighting equipment.

(46 U.S.C. 375, 416; E.O. 11239 (30 FR 9671))
[CGD 74–127, 41 FR 3843, Jan. 26, 1976]

§ 30.10–20 Deadweight or DWT—TB/ALL.

The term "deadweight" or "DWT" means the difference in metric tons between the lightweight displacement and the total displacement of a vessel measured in water of specific gravity 1.025 at the load waterline corresponding to the summer freeboard assigned according to 46 CFR, Subchapter E.

(46 U.S.C. 375, 416; E.O. 11239 (30 FR 9671))
[CGD 74–127, 41 FR 3843, Jan. 26, 1976]

§ 30.10–21 Flammable or inflammable—TB/ALL.

The words "flammable" and "inflammable" are interchangeable or synonymous terms for the purpose of the regulations in this subchapter.

§ 30.10–22 Flammable liquid—TB/ALL.

The term "flammable liquid" means any liquid which gives off flammable vapors (as determined by flashpoint from an open-cup tester, as used for test of burning oils) at or below a temperature of 80° F. Flammable liquids having lethal qualities are those having the characteristics of class "B" or "C" poisons as defined in §§ 146.25–10 and 146.25–15, of Subchapter N (Dangerous Cargoes) of this chapter. Flammable liquids are referred to by grades as follows:

(a) *Grade A.* Any flammable liquid having a Reid[1] vapor pressure of 14 pounds or more.

(b) *Grade B.* Any flammable liquid having a Reid[1] vapor pressure under 14 pounds and over 8½ pounds.

(c) *Grade C.* Any flammable liquid having a Reid[1] vapor pressure of 8½ pounds or less and a flashpoint of 80° F. or below.

§ 30.10–23 Flame arrester—TB/ALL.

The term "flame arrester" means any device or assembly of a cellular, tubular, pressure, or other type used for preventing the passage of flames into enclosed spaces.

[1] American Society for Testing Materials Standard D–323 (most recent revision), Method of Test for Vapor Pressure of Petroleum Products (Reid Method).

§ 30.10–25 Flame screen—TB/ALL.

The term "flame screen" means a fitted single screen of corrosion-resistant wire of at least 30 by 30 mesh, or two fitted screens, both of corrosion-resistant wire, of at least 20 by 20 mesh, spaced not less than ½ inch or more than 1½ inches apart.

§ 30.10–27 Flashpoint—TB/ALL.

The term "flashpoint" indicates the temperature in degrees Fahrenheit at which a liquid gives off a flammable vapor when heated in an open-cup tester. For the purpose of the regulations in this subchapter, flashpoints determined by other testing methods will be equivalent to those determined with an open-cup tester, as follows:

TABLE 30.10–27– EQUIVALENT FLASHPOINTS

Open-cup tester	Tag closed-cup tester (A. S. T. M.)	Pensky-Martens closed tester (A. S. T. M.)
° *F* 80 150	° *F*. 75 ----------	° *F*. ---------- 140

§ 30.10–29 Gas free—TB/ALL.

The term "gas free" means free from dangerous concentrations of flammable or toxic gases.

§ 30.10–31 General rules and regulations—TB/ALL.

The term "general rules and regulations" means the requirements contained in this chapter.

§ 30.10–33 Great Lakes—TB/L.

Under this designation shall be included all tank vessels navigating the Great Lakes.

§ 30.10–35 Headquarters—TB/ALL.

The term "Headquarters" means the Office of the Commandant, U.S. Coast Guard, Washington, D.C. 20591.

[CGFR 65–50, 30 F.R. 16657, Dec. 30, 1965, as amended by CGFR 68–32, 33 F.R. 5712, Apr. 12, 1968]

§ 30.10–37 Keel laying date—TB/ALL.

The term "keel laying date" means the date upon which progressive construction identifiable with a specific vessel begins, including construction of the first module or prefabricated section of the hull that is identifiable with that vessel.

(46 U.S.C. 375, 416; E.O. 11239 (30 FR 9671))
[CGD 74–127, 41 FR 3843, Jan. 26, 1976]

§ 30.10–38 Lightweight—TB/ALL.

The term "lightweight" means the displacement of a vessel in metric tons without cargo, oil fuel, lubricating oil, ballast water, fresh water, feedwater in tanks, consumable stores, and persons and their effects.

(46 U.S.C. 375, 416; E.O. 11239 (30 FR 9671))
[CGD 74–127, 41 FR 3843, Jan. 26, 1976]

§ 30.10–39 Liquefied flammable gas—TB/ALL.

The term "liquefied flammable gas" means any flammable gas having a Reid vapor pressure exceeding 40 pounds, which has been liquefied.

[CGFR 66–33, 31 F.R. 15267, Dec. 6, 1966]

§ 30.10–41 Lakes, bays, and sounds—TB/B.

Under this designation shall be included all tank vessels navigating the waters of any of the lakes, bays, or sounds other than the waters of the Great Lakes.

§ 30.10–42 Machinery space—TB/ALL.

The term "machinery space" means any space that contains machinery and related equipment including Category A machinery spaces, propelling machinery, boilers, oil fuel units, steam and internal combustion engines, generators and centralized electrical machinery, oil filling stations, refrigeration, stabilizing, ventilation, and air conditioning machinery, and similar spaces and trunks to such spaces.

(46 U.S.C. 375, 416; E.O. 11239 (30 FR 9671))
[CGD 74–127, 41 FR 3843, Jan. 26, 1976]

§ 30.10–43 Marine inspector or inspector—TB/ALL.

The terms "marine inspector" or "inspector" mean any person from the civilian or military branch of the Coast Guard assigned under the superintendence and direction of an Officer in Charge, Marine Inspection, or any other person as may be designated for the performance of duties with respect to the enforcement and administration of Title 52, R.S., acts amendatory thereof or supplemental thereto, rules and regulations thereunder, and the inspections required thereby.

§ 30.10–44 Nuclear energy, radioactive material, and nuclear vessel—TB/ALL.

(a) The term "nuclear energy" means all forms of energy released by nuclear fission or radioactive decay, or by any other form of nuclear transformation.

(b) The term "radioactive material" means any material or combination of materials that spontaneously emits ionizing radiation.

(c) The term "nuclear vessel" means any vessel in which power for propulsion, or for any other purpose, is derived from nuclear energy; or any vessel handling or processing substantial amounts of radioactive material other than as cargo.

[CGFR 68–82, 33 F.R. 18804, Dec. 18, 1968]

§ 30.10–45 Ocean—TB/O.

Under this designation shall be included all tank vessels normally navigating the waters of any ocean or the Gulf of Mexico more than 20 nautical miles offshore.

§ 30.10–47 Officer in Charge, Marine Inspection—TB/ALL.

The term "Officer in Charge, Marine Inspection," means any person from the civilian or military branch of the Coast Guard designated as such by the Commandant and who under the superintendence and direction of the Coast Guard District Commander is in charge of an inspection zone for the performance of duties with respect to the enforcement and administration of Title 52, R.S., acts amendatory thereof or supplemental thereto, rules and regulations thereunder and the inspections required thereby.

§ 30.10–48 Oil fuel—TB/ALL.

The term "oil fuel" means oil used as fuel for machinery in the vessel in which it is carried.

(46 U.S.C. 375, 416; E.O. 11239 (30 FR 9671))
[CGD 74–127, 41 FR 3843, Jan. 26, 1976]

§ 30.10–48a Oil fuel unit—TB/ALL.

The term "oil fuel unit" means the equipment used for the preparation of oil fuel for delivery to an oil fired boiler, the equipment used for the preparation of heated oil fuel for delivery to an internal combustion engine, and any oil fuel pressure pump, filter, and heater that deals with oil at a pressure of more than 1.8 kilograms per square centimeter (25 p.s.i.) gauge.

(46 U.S.C. 375, 416; E.O. 11239 (30 FR 9671))
[CGD 74–127, 41 FR 3843, Jan. 26, 1976]

§ 30.10–49 Permit—TB/ALL.

The term "permit" refers to endorsement on the certificate of inspection, au-

thorizing the presence on board of liquid flammable or combustible cargoes in bulk, issued by an Officer in Charge, Marine Inspection, for a tank vessel which is found to be in substantial compliance with the regulations in this subchapter.

§ 30.10–55 Pressure vacuum relief valve—TB/ALL.

The term "pressure vacuum relief valve" means any device or assembly of a mechanical, liquid, weight, or other type used for the automatic regulation of pressure or vacuum in enclosed places.

§ 30.10–57 Recognized classification society—TB/ALL.

The term "recognized classification society" means the American Bureau of Shipping or other classification society recognized by the Commandant.

§ 30.10–59 Reid vapor pressure—TB/ALL.

The term "Reid vapor pressure" means the vapor pressure of a liquid at a temperature of 100° F., expressed in pounds per square inch absolute, as determined by the "Reid Method" as described in the American Society for Testing Materials Standard D–323 (most recent revision), Method of Test for Vapor Pressure of Petroleum Products. This Standard is available at Headquarters for reading purposes or it may be purchased from the Society at 1916 Race Street, Philadelphia, Pa. 19103.

§ 30.10–61 Rivers—TB/R.

Under this designation shall be included all tank vessels whose navigation is restricted to rivers and/or to canals, exclusively.

§ 30.10–62 Rules of the Road—TB/ALL.

(a) The term "Rules of the Road" means the statutory and regulatory rules governing navigation of vessels. These rules are also published by the Coast Guard in pamphlet form as follows:

(1) Rules of the Road—International—Inland (CG–169).

(2) Rules of the Road—Great Lakes (CG–172).

(3) Rules of the Road—Western Rivers (CG–184).

(b) The current editions of the "Rules of the Road" pamphlets may be obtained from any Marine Inspection Office.

§ 30.10–62a Service spaces—TB/ALL.

Service spaces are spaces that are used for galleys, pantries containing cooking appliances, lockers, storerooms, paint and lamp rooms and similar spaces that contain highly combustible materials, laundries, garbage and trash disposal and stowage rooms, workshops other than those forming part of the machinery spaces, and similar spaces and trunks to such spaces.

(46 U.S.C. 375, 416; E.O. 11239 (30 FR 9671))
[CGD 74–127, 41 FR 3843, Jan. 26, 1976]

§ 30.10–63 Spark arrester—TB/ALL.

The term "spark arrester" means any device, assembly, or method of a mechanical, centrifugal, cooling, or other type and of a size suitable for the retention or quenching of sparks in exhaust pipes from internal combustion engines.

§ 30.10–65 Tank barge—B/ALL.

The term "tank barge" means any tank vessel not equipped with means of self-propulsion.

§ 30.10–67 Tankship—T/ALL.

The term "tankship" means any tank vessel propelled by power or sail.

§ 30.10–69 Tank vessel—TB/ALL.

The term "tank vessel" means any vessel especially constructed or converted to carry liquid bulk cargo in tanks.

§ 30.10–71 Tankerman—TB/ALL.

The term "tankerman" means any person holding a certificate issued by the Coast Guard attesting to his competency in the handling of flammable or combustible liquid cargo in bulk or is any person holding a valid license as master, mate, pilot, or engineer.

Subpart 30.15—Equivalents

§ 30.15–1 Conditions under which equivalents may be used—TB/ALL.

(a) Where in this subchapter it is provided that a particular fitting, material, appliance, apparatus, or equipment, or type thereof, shall be fitted or carried in a vessel, or that any particular provision shall be made or arrangement shall be adopted, the Commandant may accept in substitution therefor any other fitting, material, apparatus, or equipment, or type thereof, or any other arrangement: *Provided*, That he shall have been satisfied by suitable trials that the fitting, material, appliance, apparatus, or equipment, or type thereof, or the provision

or arrangement is at least as effective as that specified in this subchapter.

(b) In any case where it is shown to the satisfaction of the Commandant that the use of any particular equipment, apparatus, or arrangement not specifically required by law is unreasonable or impracticable, the Commandant may permit the use of alternate equipment, apparatus, or arrangement to such an extent and upon such conditions as will insure, to his satisfaction, a degree of safety consistent with the minimum standards set forth in this subchapter.

Subpart 30.20—Enforcement and Rights of Appeal

§ 30.20–1 Enforcement—TB/ALL.

The Officer in Charge, Marine Inspection, under the superintendence of the Coast Guard District Commander, is responsible for the performance of duties within his jurisdiction with respect to the enforcement and administration of Title 52, R.S., acts amendatory thereof or supplemental thereto, rules and regulations thereunder, and the inspections required thereby.

§ 30.20–10 Penalties for violations of tank vessel regulations—TB/ALL.

(a) The provisions of R.S. 4417a, as amended (46 U.S.C. 391a) provide the following penalty:

(7) The owner, master, or person in charge of any vessel subject to the provisions in this section, or any or all of them, who shall violate the provisions of this section, or of the rules and regulations established hereunder, shall be subject to a fine of not more than $1,000 or imprisonment for not more than one year, or both such fine and penalty.

(b) Certificates of inspection for tank vessels may also be revoked or suspended by the Coast Guard where such process is authorized by law. This may occur if the vessel does not meet the requirements of law or regulations in this chapter or if there is a failure to maintain the safety requirements requisite to the issuance of a certificate of inspection.

§ 30.20–50 Right of appeal—TB/ALL.

Whenever any person directly interested in or affected by any decision or action of any Officer in Charge, Marine Inspection, shall feel aggrieved by such decision or action, he may appeal therefrom to the Coast Guard District Commander having jurisdiction and a like appeal shall be allowed from any decision or action of the Coast Guard District Commander to the Commandant, whose decision shall be final: *Provided, however,* That application for such reexamination of the case by a Coast Guard District Commander or by the Commandant shall be made within 30 days after the decision or action appealed from shall have been rendered or taken.

(R.S. 4453, as amended; 46 U.S.C. 435)

Subpart 30.25—Commodities Regulated

§ 30.25–1 Commodities regulated by Subchapter D.

The commodities listed in Table 30.25–1 shall be regulated by Subchapter D.

TABLE 30.25–1

Commodities regulated by Subchapter D (If flammable or combustible, see §§ 30.10–15, 30.10–22, and 30.10–39)

Acetone.
Amyl acetate.
n-Amyl alcohol.
Asphalt.
Asphalt blending stocks:
  Roofers flux.
  Straight run residue.
Butane.
n-Butyl acetate.
sec-Butyl acetate.
n-Butyl alcohol
sec-Butyl alcohol.
tert-Butyl alcohol.
Butylene.
Corn syrup.
Cyclohexane.
p-Cymene.
Cumene.
n-Decyl alcohol.
Decaldehyde.
1-Decene.
Dextrose solution.
Diacetone alcohol.
Dicyclopentadiene.
Diethylbenzene.
Diethylene glycol.
Diethylene glycol monoethyl ether.
Diethylene glycol monomethyl ether.
Diisobutyl carbinol.
Diisobutylene.
Dioctyl phthalate.
Dipropylene glycol.
Distillates:
  Straight run.
  Flashed feed stocks.
Dodecanol.
Dodecene.
1-Dodecene.
Ethane.
Ethoxylated dodecanol.
Ethoxylated pentadecanol.
Ethoxylated tetradecanol.
Ethoxylated tridecanol.
Ethoxy triglycol.

Ethyl acetate.
Ethyl alcohol.
Ethyl benzene.
Ethyl butanol.
2-Ethyl hexanol.
Ethyl hexyl tallate.
Ethylene.
Ethylene glycol.
Ethylene glycol monobutyl ether.
Ethylene glycol monoethyl ether.
Ethylene glycol monoethyl ether acetate.
Ethylene glycol monomethyl ether.
Gas oil:
  Cracked.
Gasoline blending stocks:
  Alkylates.
  Reformates.
Gasolines:
  Automotive (containing not over 4.23 grams lead per gallon).
  Aviation (containing not over 4.86 grams lead per gallon).
  Casinghead (natural).
  Polymer.
  Straight run.
Glycerine.
Heptane.
Heptanol.
Hexane.
Hexanol.
1-Hexene.
Hexylene glycol.
Isobutyl acetate.
Isobutyl alcohol.
Isodecyl alcohol.
Isodecaldehyde.
Isohexane.
Isooctyl alcohol.
Isooctylaldehyde.
Isopentane.
Isopropyl acetate.
Isopropyl alcohol.
Jet fuels:
  JP–1 (kerosene).
  JP–3.
  JP–4.
  JP–5 (kerosene, heavy).
Kerosene.
Latex, liquid synthetic.
Linear alcohols (12–15 carbon).
Methane.
Methyl alcohol.
Methyl amyl acetate.
Methyl amyl alcohol.
Methyl ethyl ketone.
Methyl isobutyl ketone.
Methyl isobutyl carbinol.
Mineral spirits.
Naphtha:
  Coal tar.
  Solvent.
  Stoddard solvent.
  VM&P (75 percent naphtha)
Naphthalene, molten.
Nonanol.
Nonene.
1-Nonene.
Nonyl phenol.
Octanol.
1-Octene.
Oils:
  Clarified.
  Coal tar.
  Crude oil.
  Diesel oil.
  Fuel oil:
    No. 1 (kerosene).
    No. 1–D.
    No. 2.
    No. 2–D.
    No. 4.
    No. 5.
    No. 6.
  Road.
  Transformer.
Edible oils, including:
  Castor.
  Cotton seed.
  Fish.
  Olive.
  Peanut.
  Soya bean.
  Vegetable.
Miscellaneous oils, including:
  Absorption.
  Coal tar.
  Lubricating.
  Mineral seal.
  Mineral.
  Motor.
  Neatsfoot.
  Penetrating.
  Range.
  Resin.
  Rosin.
  Sperm.
  Spindle.
  Spray.
  Tall.
  Tanner's.
  Turbine.
Pentadecanol.
n-Pentane.
1-Pentene.
Petrolatum.
Petroleum naphtha.
Polybutene.
Polypropylene glycol methyl ether.
Propylene.
Propylene butylene polymer.
Propylene tetramer.
Propane.
Propionaldehyde.
n-Propyl acetate.
n-Propyl alcohol.
Propylene glycol.
Sorbitol.
Tallow.
Tetra decanol.
1-Tetradecene.
Tetrahydronaphthalene.
Toluene.
Tridecanol.
1-Tridecene.
Triethyl benzene.
Triethylene glycol.
Turpentine.
Undecanol.
1-Undecene.
Valeraldehyde.

Vinyl toluene.
Waxes:
  Carnauba.
  Paraffin.
m-Xylene.
o-Xylene.
p-Xylene.

[CGFR 70–10, 35 F.R. 3707, Feb. 25, 1970; CGD 72–58R, 37 F.R. 11774, June 14, 1972]

§ 30.25–5 Commodities regulated by Subchapter O of this chapter.

The commodities listed in Table 30.25–5 shall be regulated by the provisions of Subchapter O of this chapter.

TABLE 30.25–5

Commodities regulated by Subchapter O of this chapter.

Acetaldehyde.
Acetic acid.
Acetic anhydride.
Acetone cyanohydrin.
Acetonitrile.
Acrylonitrile.
Adiponitrile.
Allyl alcohol.
Allyl chloride.
Aminoethylethanolamine.
Ammonia, anhydrous.
Ammonium, hydroxide (not to exceed 28 percent NH_4).
Aniline.
Benzene.
Butadiene, inhibited.
Butyl acrylate (*n*-).
Butyl acrylate (iso).
Butyraldehyde (*n*-).
Butyraldehyde (iso).
Camphor oil.
Carbolic oil.
Carbon bisulfide.
Carbon tetrachloride.
Caustic potash solution.
Caustic soda solution.
Chlorine.
Chlorobenzene.
Chloroform.
Chlorohydrins, crude.
Chlorosulfonic acid.
Cresols.
Crotonaldehyde.
Dichlorodifluoromethane.
Dichloropropane.
Dichloropropene.
Diethanolamine.
Diethylenetriamine.
Diisopropanolamine.
Dimethylamine.
Epichlorohydrin.
Ethyl acrylate.
Ethyl chloride.
Ethylene cyanohydrin.
Ethylenediamine.
Ethylene dichloride.
Ethylene oxide.
Ethyl ether.
2-Ethyl-3-Propylacrolein.
Formaldehyde solution.
Formic acid.
Furfural.
Hydrochloric acid.
Hydrofluoric acid.
Hydrogen chloride.
Hydrogen fluoride.
Isoprene.
Methyl acrylate.
Methyl bromide.
Methyl chloride.
Methyl methacrylate.
Monochlorodifluoromethane.
Monoethanolamine.
Monoisopropanolamine.
Morpholine.
Motor fuel antiknock compounds containing tetraethyl lead or tetramethyl lead.
Oleum.
Phenol.
Phosphoric acid.
Phosphorus.
Propionic acid.
Propylene oxide.
Styrene.
Sulfur (liquid).
sulfur dioxide
Sulfuric acid.
Sulfuric acid, spent.
Triethanolamine.
Triethylenetetramine.
Vinyl acetate.
Vinyl chloride.
Vinylidene chloride, inhibited.

[CGFR 70–10, 35 FR 3708, Feb. 25, 1970, as amended by CGD 74–275, 40 FR 21958, May 20, 1975; CGD 73–275R, 40 FR 3086, Jan. 21, 1976]

PART 31—INSPECTION AND CERTIFICATION

Subpart 31.01—General

Sec.

31.01–1 Inspections required—TB/ALL.
31.01–5 Scope of initial inspection–TB/ALL.
31.01–10 Authority of marine inspectors—TB/ALL.
31.01–15 Application for inspection—TB/ALL.
31.01–20 Application for inspection of new tank vessel or conversion of a vessel to a tank vessel—TB/ALL.

Subpart 31.05—Certificates of Inspection

31.05–1 Issuance of certificate of inspection—TB/ALL.
31.05–5 Posting the certificate of inspection—TB/ALL.
31.05–10 Period of validity of certificate of inspection—TB/ALL.
31.05–15 Certificate of inspection; terms; endorsements—TB/ALL.

Subpart 31.10—Inspections

31.10–1 Recognized classification society—TB/ALL.
31.10–5 Inspection of new tank vessels—TB/ALL.

Sec.
31.10-10 Vessels converted to tank vessels—TB/ALL.
31.10-15 Inspection for certification—TB/ALL.
31.10-16 Inspection and certification of cargo gear—TB/ALL.
31.10-17 Reinspection—TB/ALL.
31.10-18 Firefighting equipment: General—TB/ALL.
31.10-19 All firefighting equipment may be tested—TB/ALL.
31.10-20 Drydocking or hauling out—TB/ALL.
31.10-25 Inspection covering repairs and alterations involving safety—TB/ALL.
31.10-30 Stability requirements—TB/ALL.
31.10-33 Bulk Grain Cargoes—TB/ALL.
31.10-35 Permit to proceed to another port for repair—TB/ALL.
31.10-40 Inspection during trial trip—T/ALL.
31.10-45 Inspection of crew accommodations—TB/ALL.
31.10-50 Inspecition of bilges—TB/ALL.

Subpart 31.15—Manning of Tank Vessels

31.15-1 Licensed officers and crews—TB/ALL.
31.15-5 Tank barges—B/ALL.
31.15-6 Tank barges carrying bulk cargoes having dangerous characteristics in addition to flammability or combustibility—B/ALL.
31.15-10 Towing vessels may carry persons in addition to crew—B/LBR.

Subpart 31.20—Waters Operated Over

31.20-1 Waters—TB/ALL.

Subpart 31.25—Load Lines

31.25-1 Load lines required—TB/OCL.

Subpart 31.30—Marine Engineering

31.30-1 Marine engineering regulations and material specifications—TB/ALL.

Subpart 31.35—Electrical Engineering

31.35-1 Electrical installations, lighting and power equipment, batteries, etc.—TB/ALL.
31.35-5 Communications; alarm systems, telephone and voice tube systems, engine telegraph systems, etc.—TB/ALL.

Subpart 31.37—Inspection of Cargo Gear

31.37-1 When made—TB/ALL.
31.37-3 Definitions of terms and words used in this subpart—TB/ALL.
31.37-5 Tests and examinations of shipboard cargo gear—TB/ALL.
31.37-15 Cargo gear plans required when plans are not approved by a classification society or recognized cargo gear organization—TB/ALL.
31.37-20 Cargo gear plans approved by a classification society—TB/ALL.
31.37-23 Cargo gear plans approved by a recognized cargo gear organization—TB/ALL.
31.37-25 Factors of safety.
31.37-30 Loose gear certificates and tests—TB/ALL.
31.37-35 Test and certification of wire rope—TB/ALL.
31.37-40 Proof test of cargo gear as a unit—TB/ALL.
31.37-45 Marking of booms and cranes—TB/ALL.
31.37-50 Use of wire rope and chains—TB/ALL.
31.37-55 Annealing—TB/ALL.
31.37-60 Additions to gear—TB/ALL.
31.37-65 Alterations, renewals, or repairs of cargo gear—TB/ALL.
31.37-70 Responsibility of ship's officer for inspection of cargo gear—TB/ALL.
31.37-75 Records regarding cargo gear—TB/ALL.
31.37-80 Advance notice that cargo gear testing is desired—TB/ALL.
31.37-85 Responsibility for conducting required tests and examinations—TB/ALL.

Subpart 31.40—Certificates Under International Convention for Safety of Life at Sea, 1960

31.40-1 Application—T/ALL.
31.40-5 Cargo Ship Safety Construction Certificate—T/ALL.
31.40-10 Cargo Ship Safety Equipment Certificate—T/ALL.
31.40-15 Cargo Ship Safety Radiotelegraphy Certificate—T/ALL.
31.40-20 Cargo Ship Safety Radiotelephony Certificate—T/ALL.
31.40-25—Exemption Certificate—T/ALL.
31.40-30 Nuclear Cargo Ship Safety Certificate—T/ALL.
31.40-35 Posting of Convention certificates—T/ALL.
31.40-40 Duration of Convention certificates—T/ALL.
31.40-45 American Bureau of Shipping—T/ALL.

AUTHORITY: The provisions of this Part 31 issued under R.S. 4405, as amended, 4417a, as amended, 4462, as amended, sec. 6(b)(1), 80 Stat. 938; 46 U.S.C. 375, 391a, 416, 49 U.S.C. 1655(b); 49 CFR 1.46(b) (35 F.R. 4959). Interpret or apply sec. 3, 68 Stat. 675; 50 U.S.C. 198; E.O. 11239, July 31, 1965, 30 F.R. 9671, 3 CFR, 1965 Supp. Additional authority is cited in parentheses following the sections affected.

SOURCE: The provisions of this Part 31 contained in CGFR 65-50, 30 F.R. 16662, Dec. 30, 1965, unless otherwise noted.

Subpart 31.01—General

§ 31.01-1 Inspections required—TB/ALL.

(a) Every tank vessel subject to the regulations in this subchapter shall be

inspected biennially, or annually, or oftener, if necessary, by the Coast Guard to see that the hull, boilers, machinery, equipment, apparatus for storage, and appliances of the vessel comply with the marine inspection laws, and the regulations in this subchapter, and, when applicable, subchapters E, F, J, O, and Q of this chapter and 33 CFR Part 155, Subpart B.

(b) Tank vessels while laid up and dismantled and out of commission are exempt from any or all inspections required by law or regulations in this subchapter.

(c) For inspection and tests of tanks containing certain dangerous cargoes in bulk, see Part 98 and Subchapter O of this chapter.

(R.S. 4418, as amended, 4433, as amended, 4472, as amended, 4488, as amended, section 311(j)(1) (C) and (D), 86 Stat. 816, 868, 83 Stat. 852 (46 U.S.C. 392, 411, 170, 481, 33 U.S.C. 1161(j)(1) (C) and (D), 42 U.S.C. 4321, et seq.). E.O. 11548; 3 CFR 1966–1970 Comp., p. 949; 49 CFR 1.46(m)) [CGFR 65–50, 30 FR 16662, Dec. 30, 1965, as amended by CGFR 70–10, 35 FR 3709, Feb. 25, 1970; CGD 71–161R, 37 FR 28262, Dec. 21, 1972]

§ 31.01–5 Scope of initial inspection—TB/ALL.

(a) The initial inspection, which may consist of a series of inspections during the construction of a vessel, shall include a complete inspection of the structure, including the outside of the vessel's bottom, the machinery, unfired pressure vessels, equipment and the inside and outside of the boilers. The inspection shall be such as to insure that the arrangements, material, and scantlings of the structure, boilers and other pressure vessels and their appurtenances, piping, main and auxiliary machinery, electrical installations, lifesaving appliances, fire-detecting and extinguishing equipment, pilot ladders and other equipment fully comply with the applicable regulations for such vessel and are in accordance with approved plans, and determine that the vessel is in possession of a valid certificate issued by the Federal Communications Commission, if any. The inspection shall also be such as to insure that the workmanship of all parts of the vessel and its equipment is in all respects satisfactory and that the vessel is provided with lights, and means of making sound signals and distress signals as required by applicable regulations and the the applicable Rules of the Road.

(b) For nuclear vessels, the inspections required by this section shall be made except insofar as they may be limited by the presence of radiation. In addition, the inspection shall include any special preoperational tests and inspections prescribed in the Atomic Energy Commission operating license, by the nuclear plant operating procedures, or by the vessel's Safety Assessment.

[CGFR 65–50, 30 F.R. 16662, Dec. 30, 1965, as amended by CGFR 68–32, 33 F.R. 5712, Apr. 12, 1968; CGFR 68–82, 33 F.R. 18804, Dec. 18, 1968]

§ 31.01–10 Authority of marine inspectors—TB/ALL.

Inspectors may at any time lawfully inspect any tank vessel.

§ 31.01–15 Application for inspection—TB/ALL.

(a) Application in writing for the inspection incident to the issuance or reissuance of a certificate of inspection to every tank vessel required to be inspected by law and the regulations in this subchapter shall be made by the master, owner, or agent to the Officer in Charge, Marine Inspection, at any local marine inspection office, U.S. Coast Guard, where the vessel may be operated.

(b) The application should be on Form CG–3752, Application for Inspection of U.S. Vessel, which requires information on name and type of vessel, nature of employment and route in which to be operated, grade or type of cargo to be carried, place where and date when the vessel may be inspected, and that no other application has been made to any Officer in Charge, Marine Inspection, since the issuance of the last valid certificate of inspection.

§ 31.01–20 Application for inspection of a new tank vessel or conversion of a vessel to a tank vessel—TB/ALL.

Prior to the commencement of the construction of any new tank vessel, or prior to the commencement of the conversion of any vessel to a tank vessel, application for the approval of contract plans and specifications and for a certificate of inspection shall be made in writing to the Coast Guard and no such construction or conversion shall be proceeded with until such approval is granted. (See § 31.10–1.)

Subpart 31.05—Certificates of Inspection

§ 31.05–1 Issuance of certificate of inspection—TB/ALL.

(a) When a tank vessel is found to comply with law and the regulations in this subchapter, and applicable provisions of Subchapters E, F, J, O, and Q of this chapter and 33 CFR Part 155, Subpart B, a certificate of inspection shall be issued to it, or to its owners, by the Officer in Charge, Marine Inspection.

(b) Certificates of inspection for tank vessels shall be similar in form to certificates issued to other cargo vessels, and in addition to the manning requirements and waters over which they may be operated, they shall be appropriately endorsed "Inspected and approved for the carriage of flammable or combustible liquids of Grade A, B, C, D, or E" (as the case may be), and such endorsement shall serve as a permit for such vessel to operate. The endorsement for the carriage of liquefied flammable gases is set forth in § 38.01–5 of this subchapter. The endorsement for the carriage of Class "B" or "C" poisonous liquids is set forth in § 39.01–5 of this subchapter.

(c) The certificate of inspection shall be delivered to the master or owner of the tank vessel to which it relates.

(Sec. 311(j)(1) (C) and (D), 86 Stat. 816, 868, 83 Stat. 852 (33 U.S.C. 1161(j)(1) (C) and (D), 42 U.S.C. 4321, et seq.); E.O. 11548; 3 CFR 1966–1970 Comp., p. 949; 49 CFR 1.46(m)) [CGFR 65–50, 30 FR 16662, Dec. 30, 1965, as amended by CGFR 70–10, 35 FR 3709, Feb. 25, 1970; CGD 71–161R, 37 FR 28262, Dec. 21, 1972]

§ 31.05–5 Posting the certificate of inspection—TB/ALL.

The certificate of inspection shall be framed under glass and posted in a conspicuous part of the vessel, except that where it is not practicable to so expose the certificate of inspection it shall be carried in the vessel in such manner as authorized by the Officer in Charge, Marine Inspection.

§ 31.05–10 Period of validity of certificate of inspection—TB/ALL.

(a) Certificates of inspection will be issued for periods of either 1 or 2 years. For nuclear vessels it shall be for a period of 1 year; see also § 37.10–1 of this subchapter.

(b) Application may be made by the master, owner, or agent for inspection and issuance of a new certificate of inspection at any time during the period of validity of the current certificate. For nuclear vessels see Part 37 of this subchapter.

(c) Certificates of inspection may be revoked or suspended by the Coast Guard where such process is authorized by law. This may occur if the vessel does not meet the requirements of law or regulations in this chapter or if there is a failure to maintain the safety requirements requisite to the issuance of a certificate of inspection.

[CGFR 68–82, 33 F.R. 18804, Dec. 18, 1968]

§ 31.05–15 Certificate of inspection; terms; endorsements—TB/ALL.

The terms, endorsements and conditions set forth on a certificate of inspection shall have the same force and effect as the regulations contained in this subchapter.

Subpart 31.10—Inspections

§ 31.10–1 Recognized classification society—TB/ALL.

(a) In the inspection of hulls, boilers, and machinery, the current standards established by the American Bureau of Shipping and designated "Rules for Building and Classing Steel Vessels" respecting material and construction of hulls, boilers, and machinery, except as otherwise provided for by law and regulations in this chapter, shall be accepted as standard by the Coast Guard.

(b) The current standards established by the American Bureau of Shipping in effect at the time of construction of the vessel, or otherwise as applicable, shall be used. The book "Rules for Building and Classing Steel Vessels" is usually published annually and may be purchased from the American Bureau of Shipping, 45 Broad Street, New York, N.Y. 10004. These standards may be also examined at the office of the Commandant (M), U.S. Coast Guard, Washington, D.C. 20591, or at the office of any Coast Guard District Commander or Officer in Charge, Marine Inspection.

(c) The approved plans and certificate of the American Bureau of Shipping, or other recognized classification society for classed vessels, may be accepted by the Coast Guard as evidence of the structural efficiency of the hull and reliability of machinery of vessels subject to the regulations in this subchapter, except as otherwise provided

for by laws and regulations in this chapter.

[CGFR 65-50, 30 F.R. 16662, Dec. 30, 1966, as amended by CGFR 68-32, 33 F.R. 5712, Apr. 12, 1968]

§ 31.10-5 Inspection of new tank vessels—TB/ALL.

(a) *Plans.* Triplicate copies of contract plans and specifications shall be forwarded to the Officer in Charge, Marine Inspection, in whose district the construction will take place, for submission to Headquarters for approval, but if the tank vessel is to be classed, such plans and specifications shall first be approved by a recognized classification society. If the plans and specifications are found to be in substantial agreement with the regulations in this chapter, they shall be approved, properly stamped and dated and distributed as follows: one set to owner or builder; one set to Officer in Charge, Marine Inspection, of the district in which the vessel is to be built; and one set shall be retained at Headquarters. If such plans and specifications are not approved, Headquarters shall notify the owner or builder promptly wherein they fail to comply with the regulations in this chapter. For list of electrical plans see § 111.05-5 of Subchapter J (Electrical Engineering) of this chapter.

(1) The plans and specifications shall include the arrangement of the cargo gear. The principal details of the gear and the safe working load for each component part shall be shown. (See § 31.10-16 and Subpart 31.37 for applicable requirements.)

(b) *Inspection.* During construction, and upon completion of each tank vessel, it shall be insepcted by the Officer in Charge, Marine Inspection, to determine whether it has been built in accordance with the approved plans and specifications, and, if so, a certificate of inspection endorsed as a permit for the carriage of flammable or combustible liquids in bulk for the proper grade or grades of cargo shall be issued to the vessel or its owner.

(c) *Certificate of class may be accepted.* In the event such tank vessel is classed by the American Bureau of Shipping or other recognized classification society, the approved plans and certificates of such society may be accepted by the Coast Guard as evidence of the structural efficiency of the hull and reliability of machinery, except as otherwise provided for by law and the rules and regulations in this subchapter.

§ 31.10-10 Vessels converted to tank vessels—TB/ALL.

The procedure for the inspection of vessels converted to tank vessels shall conform to the inspection for new tank vessels as called for in § 31.10-5(b), and such vessels shall comply with the requirements of inspections for converted vessels as set forth in the regulations in this subchapter.

§ 31.10-15 Inspection for certification—TB/ALL.

(a) The Officer in Charge, Marine Inspection, shall once in every 2 years, at least, and in the case of nuclear vessels, at least once every year carefully inspect such tank vessel within his jurisdiction and shall satisfy himself that every such vessel so inspected is of a structure suitable for the carriage of flammable and/or combustible liquids in bulk and for the proper grade or grades of such cargo in the service in which she is employed. If the Officer in Charge, Marine Inspection, deems it expedient, he may direct the vessel to be put in motion, and may adopt any other suitable means to test her sufficiency and that of her equipment.

(b) The inspection for certification shall include an inspection of the structure, boilers, and other pressure vessels, machinery and equipment. The inspection shall be such as to insure that the vessel, as regards the structure, boilers, and other pressure vessels and their appurtenances, piping, main and auxiliary machinery, electrical installations, lifesaving appliances, fire-detecting and extinguishing equipment, pilot ladders, and other equipment is in satisfactory condition and fit for the service for which it is intended, and that it complies with the applicable regulations for such vessels, and determine that the vessel is in possession of a valid certificate issued by the Federal Communications Commission, if required. The lights and means of making sound signals and the distress signals carried by the vessel shall also be subject to the above mentioned inspection for certification for the purpose of insuring that they comply with the requirements of the applicable regulations and of the applicable Rules of the Road.

(c) For nuclear vessels, the inspections required by this section shall be made except insofar as they may be limited by

the presence of radiation. See also Subpart 37.10 of this subchapter.

[CGFR 65–50, 30 F.R. 16662, Dec. 30, 1965, as amended by CGFR 68–32, 33 F.R. 5712, Apr. 12, 1968; CGFR 68–82, 33 F.R. 18804, Dec. 18, 1968]

§ 31.10–16 Inspection and certification of cargo gear—TB/ALL.

(a) An inspection of the cargo gear shall be required. The inspection may consist of tests and examinations to determine the condition and suitability of the cargo gear. Current valid certificates and registers of cargo gear, issued by recognized nonprofit organizations or associations approved by the Commandant may be accepted as prima facie evidence of the condition and suitability of the cargo gear. Cargo gear certificates and registers will not be issued by the Coast Guard.

(b) Every acceptable cargo gear certificate and/or register shall be properly executed by a person authorized to do so and shall:

(1) Certify as to the tests and examinations conducted;

(2) Show the dates on which the tests and examinations were conducted; and

(3) Indicate that the cargo gear therein described complies with standards equal to or exceeding those set forth in Subpart 31.37.

(c) Competent persons for the purposes of this section and Subpart 31.37 are:

(1) Coast Guard marine inspectors;

(2) Surveyors of the organizations or associations approved by the Commandant;

(3) Such other persons as are authorized by the regulations in Subpart 31.37 as may be required; and,

(4) Responsible officials or employees of the testing laboratories, companies, or organizations who conduct tests of pieces of loose cargo gear, wire rope, or the annealing of gear as may be required.

(d) The registers issued in connection with cargo gear certification must have all required entries fully completed as of the dates indicated, shall be kept current, and shall include the following:

(1) A register of the cargo handling machinery and the gear accessory thereto carried on the vessel named therein;

(2) Certification of the testing and examination of winches, derricks, and their accessory gear;

(3) Certification of the testing and examination of cranes, hoists, and their accessory gear;

(4) Certification of the testing and examination of chains, rings, hooks, shackles, swivels, and blocks;

(5) Certification of the testing and examination of wire rope;

(6) Certification of the heat treatment of chains, rings, hooks, shackles, and swivels which require such treatment; and,

(7) Certification of the annual thorough examinations of gear not required to be periodically heat treated.

(e) It is the responsibility of the master to have a ship's officer inspect cargo gear when required by Subpart 31.37. For those inspected vessels which do not have valid cargo gear certificates and registers as provided by this section, such vessels will be required to have their shipboard cargo gear undergo tests and inspections in accordance with the provisions of Subpart 31.37.

§ 31.10–17 Reinspection—TB/ALL.

(a) At least one reinspection shall be made on each vessel holding a certificate of inspection valid for two years. This reinspection will be made, where possible, between the tenth and fourteenth month of the period for which the certificate is valid. No written application for reinspection will be required.

(b) The inspector shall examine all accessible parts of the vessel's hull, machinery, and equipment to be assured that it is in a satisfactory condition.

(c) In general, the scope of the reinspection shall be the same as for the inspection for certification, but will be in less detail unless it is determined that a major change has occurred since the last inspection.

(d) Nothing in this subpart shall be construed as limiting the inspector from making such tests or inspections as he deems necessary to be assured of the seaworthiness of the vessel.

(e) If the reinspection reveals deficiencies in the maintenance as called for by the regulations in this subchapter, such necessary repairs or improvements shall be made as may be ordered.

§ 31.10–18 Firefighting equipment: General—TB/ALL.

(a) It shall be the duty of the owner, master, or person in charge of a tank vessel to require and have performed at

least once in every 12 months, the tests and inspections of all hand portable fire extinguishers, semiportable fire extinguishing systems, and fixed fire extinguishing systems on board, as described in paragraphs (b), (c), and (d) of this section. The owner, master, or person in charge shall keep records of such tests and inspections showing the dates when performed, the number and/or other identification of each unit tested and inspected, and the name(s) and/or company conducting the tests and inspections. Such records shall be made available to the marine inspector upon request and shall be kept for the period of validity of the vessel's current certificate of inspection. Where practicable, these records should be kept in or with the vessel's logbook. The conduct of these tests and inspections does not relieve the owner, master, or person in charge of his responsibility to maintain this firefighting equipment in proper condition at all times.

(b) The following tests and inspections of portable fire extinguishing equipment shall be made:

TABLE 31.10–18(b)

Type unit	Test
Soda acid	Discharge. Clean hose and inside of extinguisher thoroughly. Recharge.
Foam	Discharge. Clean hose and inside of extinguisher thoroughly. Recharge.
Pump tank (water or antifreeze).	Discharge. Clean hose and inside of extinguisher thoroughly. Recharge with clean water or antifreeze.
Cartridge operated (water, antifreeze or loaded stream).	Examine pressure cartridge and replace if end is punctured or if cartridge is otherwise determined to have leaked or to be in unsuitable condition. Remove liquid, clean hose and inside of extinguisher thoroughly. Recharge with clean water, solution, or antifreeze. Insert charged cartridge.
Stored pressure (water, antifreeze or loaded stream).	See that pressure gage is in operating range. If not, or if seal is broken, weigh or otherwise determine that full charge is in extinguisher. Recharge if pressure is low or if extinguishing agent is needed.
Carbon dioxide	Weigh cylinders. Recharge if weight loss exceeds 10 percent of weight of charge. Inspect hose and nozzle to be sure they are clear.[1]
Dry chemical (cartridge-operated type):	Examine pressure cartridge and replace if end is punctured or if cartridge is otherwise determined to have leaked or to be in unsuitable condition. Inspect hose and nozzle to see if they are clear. Insert charged cartridge. Be sure dry chemical is freeflowing (not caked) and chamber contains full charge.
Dry chemical (stored pressure type).	See that pressure gage is in operating range. If not, or if seal is broken, weigh or otherwise determine that full charge of dry chemical is in extinguisher. Recharge if pressure is low or if dry chemical is needed.
Vaporizing liquid [2] (pump type).	Pump a few strokes into clean pail and replace liquid. Keep water out of extinguisher or liquid. Keep extinguisher completely full of liquid.
Vaporizing liquid [2] (stored pressure type).	See that pressure gage is in operating range. Weigh or check liquid level to determine that full charge of liquid is in extinguisher. Recharge if pressure is low or if liquid is needed.

[1] Cylinders shall be tested and marked in accordance with the regulations of the Department of Transportation, as noted in § 147.04–1 of Subchapter N (Dangerous Cargoes) of this chapter.

[2] Vaporizing-liquid type fire extinguishers containing carbon tetrachloride or chlorobromomethane or other toxic vaporizing liquids shall be removed from all vessels.

(c) The following tests and inspections of fixed fire extinguishing equipment shall be made:

TABLE 31.10–18(c)

Type system	Test
Foam	Systems utilizing a soda solution shall have such solution replaced. In all cases, ascertain that powder is not caked.
Carbon dioxide	Weigh cylinders. Recharge if weight loss exceeds 10 percent of weight of charge.[1]

[1] Cylinders shall be tested and marked in accordance with the regulations of the Department of Transportation as noted in § 147.04–1 of Subchapter N (Dangerous Cargoes) of this chapter.

(d) Deck foam systems shall be tested biennially by discharging foam for approximately 15 seconds from any nozzle designated by the marine inspector. It shall not be required to deliver foam from all foam outlets, but all lines and nozzles shall be tested with water to prove them to be clear of obstruction. Prior to the biennial inspection of deck foam systems utilizing a mechanical foam system, a representative sample of the foam liquid shall be submitted to the manufacturer who will issue a certificate indicating gravity, pH, percentage of water dilution and solid content.

(e) At each inspection for certification and at such other times as considered necessary, the inspector shall determine that all fire extinguishing equipment is in suitable condition and that the tests and inspections required by

paragraphs (b) through (i) of this section have been conducted. In addition, the marine inspector may require such tests as are considered necessary to determine the condition of the equipment.

(f) On all fire extinguishing systems, all the piping, controls, valves, and alarms shall be checked by the marine inspector to ascertain that the system is in good operating condition.

(g) The fire main system shall be operated and the pressure checked at the most remote and highest outlets by the marine inspector. All fire hose shall be subjected to a test pressure equivalent to the maximum pressure to which they may be subjected in service, but not less than 100 p.s.i. The marine inspector shall check that the hose couplings are securely fastened in accordance with the regulations of this subchapter.

(h) At each inspection for certification and at such other times as considered necessary, all carbon dioxide cylinders for fixed, semiportable, and portable systems shall be examined and replaced if any corrosion is found. They shall also be checked by weighing to determine their contents, and if found to be more than 10 percent under the required contents of carbon dioxide, they shall be recharged.

(i) Steam smothering lines shall be tested with at least 50 pounds per square inch of air pressure or by blowing steam through the lines at the working pressure and a survey made for detecting corrosion and defects using hammer test or such other means as may be necessary.

[CGFR 65–50, 30 F.R. 16662, Dec. 30, 1965, as amended by CGFR 68–32, 33 F.R. 5712, Apr. 12, 1968]

§ 31.10–19 All firefighting equipment may be tested—TB/ALL.

(a) During the inspection of firefighting equipment, the Officer in Charge, Marine Inspection, may require fire apparatus to be tested, and used, except as provided under §§ 31.10–18(h) and 34.15–90(a) of this subchapter.

§ 31.10–20 Drydocking or hauling out—TB/ALL.

(a) Except for extensions as authorized by the Commandant, each steel hull tank vessel shall be placed in a drydock or on a slipway or hauled out for examination within the periods set forth in this paragraph, depending upon the service.

(1) Each tank vessel shall be drydocked or hauled out at intervals not to exceed 24 months if it operates in salt water an aggregate of more than 12 months in the 24-month period since it was last drydocked or hauled out.

(2) Each tank vessel that operates in salt water an aggregate of less than 6 months in any 12-month period since it was last drydocked or hauled out shall be drydocked or hauled out at intervals not to exceed 36 months. Each tank vessel that operates in salt water an aggregate of more than 6 months in any 12-month period shall be drydocked or hauled out within 12 months of the end of such 12-month period or within 36 months of its last drydocking or hauling out, whichever occurs first.

(3) Tank barges which operate in salt water an aggregate of less than 1 month in any 12-month period shall meet the requirements of subparagraph (2) of this paragraph except that the Officer in Charge, Marine Inspection, may accept an internal inspection in lieu of the first required drydocking or hauling out after date of build, and for double hulled barges (double sides, ends, and bottoms), he may also accept an internal inspection for each alternate drydocking or hauling out thereafter.

(b) Each wood hull tank vessel shall be placed in drydock or on a slipway or hauled out for examination at intervals not to exceed 48 months.

(c) Each tank vessel, irrespective of service which has not complied with these drydocking requirements, either because it was on voyage or was tied up, shall be drydocked or hauled out upon the completion of such voyage or before being placed in service.

(d) Whenever any tank vessel is placed in drydock or on a slipway or hauled out for repairs it shall be the duty of the master, owner, or agent to report the same, together with the nature of any repairs or alterations contemplated, to the Officer in Charge, Marine Inspection, of that zone, and if the condition or age of the vessel, in the judgment of the inspectors, renders an examination necessary, a thorough inspection shall be made by them to determine what is necessary to make such vessel seaworthy and come within the provisions of the regulations in this subchapter.

(e) Sea chests, sea valves, sea strainers and bilge injection valves shall be

examined at the time of the drydockings required by paragraphs (a), (b), and (c) of this section and shall be opened up for internal examination when deemed necessary by the Officer in Charge, Marine Inspection.

(83 Stat. 852 (42 U.S.C. 4321, et seq.)) [CGFR 65-50, 30 FR 16662, Dec. 30, 1965, as amended by CGFR 68-32, 33 FR 5712, Apr. 12, 1968; CGFR 68-63, 33 FR 8226, June 1, 1968; CGD 71-161R, 37 FR 28262, Dec. 21, 1972]

§ 31.10-25 Inspection covering repairs and alterations involving safety—TB/ALL.

No extensive alterations involving the safety of a tank vessel either in regard to hull or machinery shall be made without the approval of the Commandant. Before such alterations are carried out, copies of plans and specifications in triplicate for the work involved shall be forwarded to the Officer in Charge, Marine Inspection, in whose zone the repairs will be made, for submission to Headquarters for approval. If approved one set of the plans and specifications, properly stamped and dated, shall be returned to the owner or to the repair yard designated by the owner; one set to the Officer in Charge, Marine Inspection, who forwarded the plans and specifications to Headquarters; and one set shall be retained at Headquarters. If such plans and specifications are not approved, the Commandant shall promptly notify the owner or designated shipyard wherein they fail to comply with the regulations in this chapter. No extensive repairs to the hull or machinery which affect the safety of a vessel shall be made without the knowledge of the Officer in Charge, Marine Inspection.

§ 31.10-30 Stability requirements—TB/ALL.

(a) *Application.* The provisions of this section shall apply to the following tank vessels:

(1) Any tankship of 500 gross tons and over on an international voyage, construction or conversion of which is started on or after November 19, 1952.

(2) Any other vessel whose stability is questioned by the Commandant or the Officer in Charge, Marine Inspection.

(b) *Stability test.* (1) The stability of each new tank vessel or class of vessels to which this section pertains shall be subject to review by the Commandant to determine whether or not a stability test is required. Where such a review involving a comparison with existing similar vessels, clearly indicates that due to the vessel's proportions and arrangements more than sufficient metacentric height will be available in all probable loading conditions, a stability test will not be required. Consistent with the foregoing principle, tank vessels will ordinarily not be required to be inclined if they have a molded beam in excess of 11 feet plus 1.5 times the molded depth, and further, if those vessels over 300 feet in length have two or more longitudinal bulkheads and those of 300 feet and less have at least one longitudinal bulkhead.

(2) The Commandant may allow the stability test of a tank vessel to be dispensed with provided basic stability data are available from the stability test of a sister vessel and it is shown to the satisfaction of the Commandant that reliable stability information for the exempted vessel can be obtained from such basic data.

(c) *Plans required.* (1) The following plans are essential for use in determining whether or not a stability test is to be required and should be made available as early as possible:

Lines plan.
Curves of form.
General arrangement plan of all decks and levels.
Inboard and outboard profile.
Midship section.

(2) If it is determined that a stability test is required, the following additional plans will be required:

Capacity plan showing capacities and vertical and longitudinal centers of gravity of all tanks and cargo spaces.
Tank sounding tables.
Draft mark locations.

(d) *Information supplied to master.* (1) Vessels which are exempted from a stability test in accordance with the provisions of subparagraph (b)(1) of this section will be provided with a stability letter recording this fact.

(2) Vessels for which a stability test is required or which are exempted from such a test in accordance with subparagraph (b)(2) of this section shall be provided with information, based upon the results of the applicable stability test, which is such that the master can, by rapid and simple process, obtain accurate guidance as to the stability of the vessel under varying conditions of service. Where special regard to particular operating conditions is necessary to as-

sure safety of the vessel, full information relative thereto shall be included. The information required by this paragraph shall be submitted to the Commandant. Upon approval of this information, a stability letter recording this fact will be provided to the vessel.

(e) *Stability letter.* (1) Each tank vessel subject to the requirements of this section shall have posted under glass in the pilothouse a stability letter issued by the Coast Guard before the vessel is placed in service.

(2) Stability letters issued in accordance with subparagraph (d)(2) of this section will set forth the master's responsibility for maintaining satisfactory stability conditions at all times.

(f) *Alterations.* Where any alterations are made to a tank vessel so as to materially affect the stability information supplied to the master, amended stability information shall be provided. If necessary the vessel shall have a new stability test.

§ 31.10-32 Loading information—TB/ALL.

(a) This section applies to each tankship and tank barge the construction of which begins on or after 6 SEPT 1977

(b) Each tank vessel over 300 feet in length must have the loading information prescribed in either § 42.15-1(a) or § 45.105(a) of this chapter. For tank vessels subject to the Load Line Acts the information must be approved by the Commandant or by a recognized classification society that is approved by the Commandant. For tank vessels not subject to the Load Line Acts loading information must be approved by the Commandant. If the vessel is a tankship, the approved information must be provided to the master of the vessel. If the vessel is a tank barge, the information must be provided to the person in charge of handling the cargo during loading or offloading of the barge.

§ 31.10-33 Bulk Grain Cargoes—TB/ALL.

(a) Tank vessels that are designed to carry bulk liquids and that have two or more longitudinal divisions may carry grain in bulk if each tank, other than one pair of wing tanks, is trimmed full; or

(1) the owner submits calculations to either the Commandant or the National Cargo Bureau, Inc., One World Trade Center, Suite 2757, New York, N.Y. 10048, showing that under the most unfavorable loading conditions, the vessel will not heel more than 5 degrees due to a grain shift having a resulting grain surface of 12 degrees to the horizontal; and

(2) the master complies with Part C of the Annex to Inter-Governmental Maritime Consultative Organization (IMCO) Resolution A.264(VIII), where applicable. As used in Resolution A.264 (VIII), the term "Administration" means "U.S. Coast Guard." Copies of Resolution A.264(VIII) may be obtained from the National Cargo Bureau, Inc., One World Trade Center, Suite 2757, New York, N.Y. 10048, the Commandant (G-M/82), U.S. Coast Guard, 400 Seventh Street, SW., Washington, D.C. 20590; or the office of any Coast Guard District Commander or Officer in Charge, Marine Inspection. The provisions of IMCO Resolution A.264 (VIII) are published separately in U.S. Coast Guard Navigation and Inspection Circular No. 3-75 dated August 20, 1975.

(b) Notwithstanding the provisions of 46 CFR 56.50-50, bilges must be properly prepared and sounding pipes in place, clear and operable. If bilges are not present, suctions must be boxed.

(c) The vessel must comply with 46 CFR 93.20-15.

(d) Tank vessels that carry grain in bulk, but that do not meet the requirements of paragraph (a) of this section, must meet the requirements of 46 CFR 93.20.

[CGD 74-182, 40 FR 36343, Aug. 20, 1975]

§ 31.10-35 Permit to proceed to another port for repair—TB/ALL.

(a) The Officer in Charge, Marine Inspection, may issue a permit to proceed to another port for repair, Form CG-948, to a vessel if in his judgment it can be done with safety even if the certificate of inspection of the vessel has expired or is about to expire.

(b) Such permit will only be issued upon the written application of the master, owner or agent of the vessel.

(c) The permit will state upon its face the conditions under which it is issued and whether or not the vessel is permitted to carry freight or passengers. Passengers may not be carried if the certificate of inspection has expired.

(d) The permit shall be carried in a manner similar to that described in § 31.05-5 for a certificate of inspection.

(R.S. 4453, as amended; 46 U.S.C. 435)

§ 31.10–40 Inspection during trial trip—T/ALL.

On the trial trip of each new or converted tankship, an inspector shall be present to observe from the standpoint of safety in the carriage of flammable and/or combustible liquids in bulk, the operation of boilers, engines, steering gear, and auxiliaries; and if not satisfied with the performance of such boilers and machinery, appliances, and apparatus for stowage, he shall make such requirements as in his judgment will overcome any deficiencies which may have come under his observation.

§ 31.10–45 Inspection of crew accommodations—TB/ALL.

Crew's quarters shall be inspected to determine their sanitary condition. The Officer in Charge, Marine Inspection, upon completing such inspection, shall notify the master or officer in charge of the vessel of his findings.

which shall be entered in the vessel's log book.

(Sec. 4, 49 Stat. 1935, as amended; 46 U.S.C. 660a)

§ 31.10–50 Inspection of bilges—TB/ALL.

(a) When inspecting oil-burning vessels, either internal-combustion type or steam-driven type, the marine inspector shall examine the tank tops and bilges in the fireroom and engineroom to see that there is no accumulation of oil which might create a fire hazard.

(Interpret or apply R.S. 4488, as amended; 46 U.S.C. 481)

Subpart 31.15—Manning of Tank Vessels

§ 31.15–1 Licensed officers and crews—TB/ALL.

(a) The Officer in Charge, Marine Inspection, who inspects the vessel, shall make in the certificate of inspection for each tank vessel an entry of such complement of officers and/or crew as required by law and regulations in this subchapter, and which in the judgment of the Officer in Charge, Marine Inspection, will be necessary for her safe operation. The complement may be changed from time to time by endorsement on such certificate by an Officer in Charge, Marine Inspection, by reason of change of conditions or employment.

(b) In all cases where a certificate of inspection does not require at least two licensed officers, the Officer in Charge, Marine Inspection, shall enter in the certificate of inspection issued to any manned tank vessel subject to the regulations in this subchapter the number of the crew required to be certificated as tankermen. If the total complement of a tank vesel is either one or two persons, only one such person need be a certificated tankerman. If the total complement exceeds two, only two such persons need be certificated tankermen.

(R.S. 4463, as amended, sec. 2, 40 Stat. 549, as amended; 46 U.S.C. 222, 223)

§ 31.15–5 Tank barges—B/ALL.

(a) Tank barges subject to the provisions of this subchapter need not be manned unless in the judgment of the Officer in Charge, Marine Inspection, such manning is necessary for the protection of life and property and for the safe operation of the vessel. However, towing vessels, while towing barges which are not required to be manned, shall carry in the regular complement of the towing vessel and shall have on board at all times while towing, at least one licensed officer or certificated tankerman.

(b) Where the bulk liquid cargo to be transported is covered by the requirements of § 35.01–55 of this subchapter, the person in charge of the towing vessel or barge shall be provided with, and have on board, the information card required by § 35.01–55(c) of this subchapter.

[CGFR 70–10, 35 FR 3709, Feb. 25, 1970]

§ 31.15–6 Tank barges carrying bulk cargoes having dangerous characteristics in addition to flammability or combustibility—B/ALL.

(a) For those tank barges carrying a bulk liquid cargo covered by the requirements of § 35.01–55 of this subchapter, at least one member of the crew of the barge required to be manned pursuant to § 31.15–5 shall be especially qualified in the handling of the specific cargo to be carried. The Officer in Charge, Marine Inspection, shall be furnished satisfactory documentary evidence that such person is trained in and capable of performing competently the necessary operations which relate to the carriage and transfer of such cargo.

(Interpret or apply R.S. 4488, as amended; 46 U.S.C. 481)

§ 31.15–10 Towing vessels may carry persons in addition to crew—B/LBR.

(a) Towing vessels engaged in towing tank barges on the Great Lakes, inland waters, or rivers, may be authorized by the Coast Guard District Commander of the district to carry on board such number of persons in addition to its crew as shall be deemed necessary to carry on the legitimate business of such towing vessel or barge, not exceeding, however, one person to every net ton of the towing vessel.

(b) A Coast Guard District Commander granting a license to a vessel engaged in towing to carry persons in addition to its crew shall notify the Officer in Charge, Marine Inspection, in whose jurisdiction the vessel receiving the permit is engaged, and the Officer in Charge, Marine Inspection, shall keep a record of the same.

(Sec. 1, 24 Stat. 129, as amended; 46 U.S.C. 458)

Subpart 31.20—Waters Operated Over

§ 31.20–1 Waters—TB/ALL.

The certificate of inspection shall show the waters over which the tank vessel is permitted to operate, such as: all waters; oceans; coastwise; Great Lakes; bays, sounds, and lakes other that the Great Lakes; rivers; or inland waters tributary to the Gulf of Mexico.

Subpart 31.25—Load Lines

§ 31.25–1 Load lines required—TB/OCL.

All tank vessels of 150 gross tons or over, or 79 feet in length or greater, navigating the oceans, coastwise waters, and Great Lakes are subject to the regulations in Parts 42 to 45, inclusive, Subchapter E (Load Lines), of this chapter, as applicable.

(Sec. 2, 45 Stat. 1493, as amended, sec. 2, 49 Stat. 888, as amended; 46 U.S.C. 85a, 88a) [CGFR 69–72, 34 F.R. 17481, Oct. 29, 1969]

Subpart 31.30—Marine Engineering

§ 31.30–1 Marine engineering regulations and material specifications—TB/ALL.

(a) All tank vessels are subject to the regulations contained in Parts 50 to 63, inclusive, of Subchapter F (Marine Engineering) of this chapter, whenever applicable, except as such regulations are modified by the regulations in this subchapter for tank vessels.

(Sec. 2, 23 Stat. 118, as amended, secs. 2, 633, 63 Stat. 496, 545, sec. 6(b)(1), 80 Stat. 938; 46 U.S.C. 2, 14 U.S.C. 2, 633, 49 U.S.C. 1655(b); 49 CFR 1.4(a)(2). R.S. 4472, as amended, sec. 14, 29 Stat. 690, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, as amended; 46 U.S.C. 170, 363, 367) [CGFR 68–82, 33 F.R. 18804, Dec. 18, 1968]

Subpart 31.35—Electrical Engineering

§ 31.35–1 Electrical installations, lighting and power equipment, batteries, etc.—TB/ALL.

All tank vessels are subject to the regulations contained in Subchapter J (Electrical Engineering) of this chapter except as such regulations are modified by the regulations in this subchapter for tank vessels.

§ 31.35–5 Communications; alarm systems, telephone and voice tube systems, engine telegraph systems, etc.—TB/ALL.

All tank vessels are subject to the regulations contained in Subchapter J (Electrical Engineering) of this chapter except as such regulations are modified by the regulations in this subchapter for tank vessels.

Subpart 31.37—Inspection of Cargo Gear

§ 31.37–1 When made—TB/ALL.

(a) The specific tests and examinations shall be made at the intervals stated in the regulations in this subpart.

(b) A thorough examination of the assembled gear shall be made at least once in every year.

(c) An inspection to determine the condition and suitability of shipboard cargo gear will be made by a marine inspector at each inspection for certification. Inspections may be made at such other times as considered necessary by the Officer in Charge, Marine Inspection.

(d) For vessels fitted with cargo gear, an initial inspection of the assembled units under proof loads shall be conducted, followed by a complete dismantling or disassembling of such gear and a thorough examination of the parts to ascertain its condition. Subsequent tests of the assembled units under proof loads, followed by a dismantling or disassembling of such gear and a thorough examination shall be made once every 4 years, or oftener if necessary.

§ 31.37–3 Definitions of terms and words used in this subpart—TB/ALL.

(a) *Cargo gear.* The term "cargo gear" includes masts, stays, booms, winches, cranes, elevators, conveyors, standing and running gear forming that part of the shipboard cargo gear used in connection with the loading or unloading of dry cargo. This term does not include the gear used for handling cargo hoses or ship stores' only.

(b) *Dismantling or disassembling of gear.* The "dismantling" or "disassembling" of gear contemplated is the taking apart of units of gear to the extent necessary to determine the suitability of such gear for continued service and as may be specifically required to carry out the intent of a particular provision in this subpart. After proof load tests, the disassembling need not include the sheaves and pins of the blocks included in the test unless there appears to be evidence of deformation or failure.

(c) *Thorough examination.* The "thorough examination" contemplated is a visual examination, supplemented if necessary by other means such as by a hammer test or by a test with electronic or ultrasonic devices.

(d) *Ton.* The word "ton" means a ton of 2,240 pounds.

(e) *Safe working load.* The "safe working load" (SWL) contemplated is the load the gear is approved to lift, excluding the weight of the gear itself.

§ 31.37-5 Tests and examinations of shipboard cargo gear—TB/ALL.

(a) For vessels fitted with cargo gear and without valid cargo gear certificates and registers issued by organizations or associations recognized by the Coast Guard, inspections shall be made by those competent persons described in paragraph (c) (1) and (2) of § 31.10-16, to determine the condition and suitability of the shipboard cargo gear. For the initial and subsequent quadrennial inspections, all the cranes, winches, hoists, derrick booms, derrick and mast bands, and all parts used in loading or unloading cargo shall be assembled in units and such assembled units shall then be tested under proof loads. The proof loads shall be handled for various types of units as required by specific regulations in this subpart. After the proof load tests of the assembled units of gear have been made, such gear shall be disassembled or dismantled so as to permit them to be thoroughly examined. The sheaves and pins of the blocks included in these proof load tests need not be removed unless there appears to be evidence of deformation or failure.

(b) For vessels fitted with cargo gear and holding valid cargo gear certificates and registers issued by organizations or associations recognized by the Coast Guard, the marine inspectors may accept such certificates as prima facie evidence of compliance with the requirements in this subpart. If an Officer in Charge, Marine Inspection, is in doubt as to the condition and suitability of shipboard cargo gear for such a vessel, the tests and examinations, or such portions thereof as deemed necessary, provided for in this subpart will be required.

(c) If any part or portion of the gear fails or becomes defective during such tests, such defective equipment shall be satisfactorily repaired or replaced.

§ 31.37-15 Cargo gear plans required when plans are not approved by a classification society or recognized cargo gear organization—TB/ALL.[1]

(a) For a new vessel or vessel applying for initial inspection, the following plans of cargo gear are required to be submitted in triplicate to the Officer in Charge, Marine Inspection, for approval:

(1) Plans showing a stress diagram with the principal details of the gear.

(2) Plans containing a diagram showing the arrangement of the assembled gear and indicating the safe working load for each component part.

(b) The safe working load on which the design of any component part of the cargo gear is to be based, shall be taken as the maximum resultant load upon the component part in the design conditions assumed. The safe working load of the assembly is the load the gear is approved to lift, excluding the weight of the gear itself.

(c) One approved copy of each set of cargo gear plans shall be retained on the vessel.

§ 31.37-20 Cargo gear plans approved by a classification society—TB/ALL.

(a) The plans required by § 31.37-15 (a) need not be submitted to the Officer in Charge, Marine Inspection, for approval if such plans are or have been approved by the American Bureau of Shipping or similar classification society recognized by the Commandant.

(b) One approved copy of each set of cargo gear plans shall be retained on the vessel.

§ 31.37-23 Cargo gear plans approved by a recognized cargo gear organization—TB/ALL.

(a) The plans required by § 31.37-15 (a) need not be submitted to the Officer in Charge, Marine Inspection, for approval if such plans are or have been approved by a recognized cargo gear organization listed in paragraph (b) of this section.

(b) The following cargo gear organizations are recognized as having the technical competence to handle the required review of cargo gear plans, including stress and arrangement diagrams, and this recognition will continue in effect until suspended, canceled, or modified by proper authority:

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[1] 33 FR 14703, Oct. 2, 1968.

(1) International Cargo Gear Bureau, Inc., with home office at 17 Battery Place, New York, N.Y. 10004.

(c) One approved copy of each set of cargo gear plans shall be retained on the vessel.

[33 F.R. 14703, Oct. 2, 1968]

§ 31.37-25 Factors of safety.

(a) Except as provided in paragraph (b) of this section, in the design of cargo gear, the minimal safety factors in Table 31.37-25(a) must be used to meet the requirements of § 31.37-15.

(b) The Commandant may permit the use of safety factors different than those in Table 31.37-25(a) in the design of cargo gear that he considers special.

TABLE 31.37-25(a)

Safe working loads for component parts	Safety factors based on [1]—		
	Ultimate strength	Yield point	Breaking test load
All metal structural parts except steel booms, stayed masts, pins and connections:			
5 tons or less working load of the assembled gear	5.00	[2] 2.75	
15 tons working load of the assembled gear	4.00	[2] 2.20	
60 tons or more working load of the assembled gear	3.75	[2] 2.05	
Steel booms:			
10 tons or less working load of the assembled gear		3.00	
13 tons or more working load of the assembled gear		2.50	
Stayed masts:			
10 tons or less working load of assembled gear	5.00		
13 tons or more working load of assembled gear	4.00		
Pins and connections:			
10 tons or less working load of assembled gear		[2] 3.00	
13 tons or more working load of assembled gear		[2] 2.50	
Wire rope:			
10 tons or less working load			5.00
13 tons or more working load			4.00
Fiber rope:			
For running rigging	7.00		
For fixed gear and vangs	5.00		
Wooden structural parts	8.00		
Chains	4.50		

[1] Intermediate values of safety factors may be used.
[2] The minimum yield point for design purposes shall not be considered greater than 72 percent of the minimum ultimate strength of the steel.

[CGD 72-150R, 37 FR 20826, Oct. 5, 1972; CGD 72-150R, 37 FR 21816, Oct. 14, 1972]

§ 31.37-30 Loose gear certificates and tests—TB/ALL.

(a) (1) Evidence of compliance with the proof load test requirements in this section for all chains, rings, hooks, links, shackles, swivels, blocks, and any other loose gear whether accessory to a machine or not, but which is used as ship's cargo gear, shall be listed on an appropriate certificate.

(2) This evidence of test and the recording thereof is required only once with respect to each article of gear so long as each article is identified and the certificates required are available on the vessel.

(3) Proof loads applied to the articles of loose gear shall be as shown in Table 31.37-30(a)(3).

(b) All chains, rings, hooks, links, shackles, swivels, blocks and any other loose gear, whether accessory to a machine or not, but which are used or intended for use as ship's cargo gear, shall bear a mark or number by which each piece can be identified when listed on a loose gear certificate. The safe working load "SWL" shall be marked on all blocks.

(c) The loose gear certificate shall show the distinguishing number or mark applied to the article of gear; a description of the article of gear; the date when the test proof load was applied; and the safe working load. The forms for loose gear certificates shall be as prescribed by and acceptable to associations or organizations approved by the Commandant and shall be suitable for the purposes described in this section.

(d) After being tested, all of the gear shall be examined to ascertain whether any part has been damaged, permanently deformed by the test, or has other visible defects. The pins and sheaves of all tested blocks shall be removed for this purpose. If damaged during these tests, such gear shall be satisfactorily repaired or replaced.

(e) The required examinations as set forth in paragraph (d) of this section may be accomplished by mechanical, electrical or other means provided the method employed is equal in efficiency to the visual examination of disassembled gear.

TABLE 31.37-30(a)(3)

Articles of gear	*Proof load*
Chains, rings, hooks, links, shackles, swivels	Twice the safe working load.
Single sheave block	Four times the safe working load.[1]
Multiple sheave block with safe working load up to and including 20 tons.	Twice the safe working load.
Multiple sheave block with safe working load over 20 tons up to and including 40 tons.	20 tons in excess of the safe working load.
Multiple sheave block over 40 tons	One and a half times the safe working load.
Chain fall blocks used with roller chains (pitched chains), and rings, hooks, shackles, or swivels permanently attached thereto.	Do.

[1] The proof load applied to the block is equivalent to twice the maximum resultant load on the eye or pin when lifting the safe working load attached to a rope which passes around the sheave of the block. The proof load is, therefore, equal to four times the safe working load or twice the safe working load when the load is attached directly to the block instead of a rope passing around the sheave.

§ 31.37-35 Test and certification of wire rope—TB/ALL.

(a) All wire rope used as shipboard cargo gear shall be able to withstand a breaking test load of at least five times the safe working load. In the case of gear with a lifting capacity of over 10 tons, the breaking test load of wire rope shall be at least four times the safe working load. All wire rope shall be identified and described in a wire rope certificate. Such certificate shall be furnished and attested to by the manufacturer or a testing agency and shall certify:

(1) The breaking test load of a sample of the wire rope, which should be at least five times the safe working load or at least four times the safe working load if part of gear with a lifting capacity of over 10 tons;

(2) The name and address of the manufacturer;

(3) The diameter of the rope in inches and/or fractions thereof;

(4) The number of strands and the number of wires in each strand;

(5) The quality of the wire (e.g., improved plow steel);

(6) The date of the test; and,

(7) The load at which the sample broke.

(b) The forms for the wire rope certificate shall be prescribed by and acceptable to associations or organizations approved by the Commandant and shall be suitable for the purposes described in this section.

(c) In addition to the manufacturers' or testing agencies' attestations, a sample of the wire rope may be tested to destruction if required by the marine inspector when a visual inspection indicates an apparent defective conditon.

§ 31.37-40 Proof test of cargo gear as a unit—TB/ALL.

(a) Winches with their accessory gear, including the derricks and attachments, at least once in each four years, shall be tested as a unit with proof loads exceeding the safe working load as set forth in Table 31.37-40(a).

TABLE 31.37-40(a)

Safe working load of assembled gear	*Proof load*
Not exceeding 20 tons.	25 percent in excess.
Over 20 tons but not exceeding 50 tons.	5 tons in excess.
Over 50 tons.	10 percent in excess.

(b) The proof load applied to winches and their gear shall be lifted with the ship's normal tackle, including the winches, and with the boom at an angle which should not be greater than 15 degrees to the horizontal or to the lowest angle approved in association with the design, or when these angles are impracticable, to the lowest practicable angle. When the load has been lifted, it shall be swung as far as possible in both directions.

(1) Where electrical winches are fitted with electromagnetic brakes, or where electrohydraulic winches are fitted with electromagnetic or hydraulic brakes at the winch, mechanical brakes for manual operation will not be required, but if so fitted shall be in satisfactory operating condition.

(2) Current for electric winch operation during the test shall be taken from the ship's circuits. Shore current may be used if it passes through the ship's switchboard.

(c) Cranes and other hoisting machines with their accessory gear at least

once in each four years, shall be tested, with a proof load which shall exceed the safe working load as set forth in Table 31.37-40(a).

(d) The proof load applied to cranes and hoists shall be lifted, topped, and swung (slewed) as far as possible in each direction. If the boom of the crane has a movable radius, it shall be tested with a proof load as set forth in this section at the maximum and minimum radii of the boom. In the case of hydraulic cranes whose capacity is limited by pressure, and with which it is not possible to lift a load 25 percent in excess of the safe working load, the greatest possible load in excess of the safe working load shall be used. These tests and the amounts of the loads shall be recorded.

(e) After satisfactory completion of the proof load testing of the cargo gear in accordance with paragraphs (a) through (d) of this section, the cargo gear and all component parts shall be given a thorough visual examination, supplemented as necessary by other means such as a hammer test or with electronic or ultrasonic devices, to determine if any of the parts were damaged, deformed, or otherwise rendered unsafe for further use. If found defective, such gear shall be replaced.

(1) When the test is being conducted for the first time on a vessel, accessory gear shall be dismantled or disassembled for examination after the test. The sheaves and pins of the blocks included in this test need not be removed unless there appears to be evidence of deformation or failure.

(2) For subsequent tests such parts of the machinery and gear shall be dismantled and/or disassembled after the test as necessary to determine its suitability for continued service.

(f) Appropriate means shall be provided to prevent the foot of the boom from being accidentally lifted from the socket during the test.

(g) Vessels whose cargo gear has been in use but are without the valid registers and certificates described in § 31.10-16 will be inspected for defective cargo gear. The gear shall then be tested and examined as prescribed in this section. If the movable weights for proof testing are not reasonably available, a spring or hydraulic scale certified for accuracy may be used. Whenever such scales are used, the proof load shall be applied with the boom swung out as far as possible in one direction and then in the other direction, and at such intermediate positions as may be indicated. At any position, the indicator of the scale must maintain a constant reading under the proof load for a period of five minutes.

(h) On all types of winches and cranes efficient means shall be provided to stop and hold the proof load in any position, and the efficiency of such means shall be demonstrated.

(1) Electric winches, electrohydraulic winches fitted with electromagnetic or hydraulic brakes at the winch, or cranes shall be equipped so that a failure of the electric power shall stop the motion and set the brakes without any action on the part of the operator.

(2) Current for electric winches and cranes operation during the tests shall be taken from the ship's circuits. Shore current may be used if it passes through the ship's switchboard.

§ 31.37-45 Marking of booms and cranes—TB/ALL.

(a) The safe working load (abbreviated "SWL") for the assembled gear shall be marked on the heel of each boom, with the minimum angle to the horizontal for which the gear is designed. These letters and figures shall be in contrasting colors to the background and at least one inch in height.

(b) Where booms are rated at varying capacities depending on the radii, tables indicating the maximum safe working loads for the various working angles of the boom and the maximum and minimum radii at which the boom may be safely used shall be conspicuously posted near the controls and visible to the operator when working the gear.

§ 31.37-50 Use of wire rope and chains—TB/ALL.

(a) An eye splice made in any wire rope used as cargo gear, with or without a thimble, shall have at least three tucks with whole strands and two tucks with one half of the wire cut from the tucking strand: *Provided,* That this requirement shall not preclude the use of any other form of splice or connection if it is as efficient as the splice specified.

(b) Single wire rope cargo falls, wire rope pendants, topping lifts and preventers shall consist of clear lengths without splices except at the working ends. Wire rope clips shall not be used to form eyes in the working ends of single wire rope cargo falls.

(c) Wire rope shall not be used for shipboard cargo gear if in any length of 8 diameters, the number of visible broken wires exceeds ten percent of the total number of wires in the rope, or if the rope shows other signs of excessive wear, corrosion, kinking, or defect.

(d) Hoisting or sling chains used for shipboard cargo gear shall not be used if a length of chain has been stretched more than five percent of the original length, or the chain has become unsafe through overloading or faulty heat treatment, or whenever other external defects are evident.

(e) Chains used for shipboard cargo gear shall not be shortened by knotting, bolting, or wiring the links. The use of chains having a knot or kink as shipboard cargo gear is prohibited.

§ 31.37-55 Annealing—TB/ALL.

(a) Chains, hooks, rings, links, shackles, and swivels of wrought iron used as cargo gear shall be annealed at the following intervals:

(1) Wrought iron chains and gear in general use and of one half inch or less, at least once in every six months.

(2) All other wrought iron chains and gear, including topping lift chains, in general use, at least once in every twelve months.

(b) The annealing shall be done in a suitable closed oven and not over an open fire. Wrought iron shall be annealed at a temperature of between 1100° and 1200° Fahrenheit for a period of between 30 and 60 minutes. After being annealed, the article shall be allowed to cool slowly and shall be then tested completely for defects.

(c) Heat treatment of the cargo gear shall be done only by reputable firms having suitable equipment and personnel trained for this purpose. A certificate attesting to the annealing shall be furnished for all gear so treated.

(d) The heat treatment of chains, hooks, rings, links, shackles, and swivels of materials other than wrought iron used as cargo gear, if required, shall be effected in accordance with the manufacturer's instructions.

§ 31.37-60 Additions to gear—TB/ALL.

(a) When articles of loose gear and/or wire rope conforming with the requirements in this subpart are added to installed gear, or used as replacements in such gear from time to time, a record shall be maintained on the vessel which shall identify each article and the certificate accompanying it.

§ 31.37-65 Alterations, renewals, or repairs of cargo gear—TB/ALL.

(a) Whenever important repairs, renewals, or alterations are indicated or intended for the masts, booms, and permanent fittings of the cargo gear, such repairs, renewals, or alterations shall be undertaken only after compliance with § 31.10-25.

(b) Tests and examinations of the repairs, renewals, or alterations will be in accordance with § 31.37-40.

(c) When welding is used to lengthen, alter, or repair chains, rings, hooks, links, shackles, or swivels, they shall be properly heat treated and shall, before being again put into use, be tested and examined in accordance with the provisions of § 31.37-30.

§ 31.37-70 Responsibility of ship's officer for inspection of cargo gear—TB/ALL.

(a) All wire rope, chains other than bridle chains attached to booms or masts, and all rings, hooks, links, shackles, swivels, and blocks used in loading or unloading shall be visually inspected by a ship's officer designated for that purpose by the master.

(b) These inspections by a ship's officer shall be made at frequent intervals, and in any event not less than once in each month.

(c) Immediately after such an inspection by a ship's officer notations of such an inspection shall be made in record form which shall be in or kept with the cargo gear register if carried. In addition, the same notations of inspections together with the dates shall be entered in the Official Logbook for those vessels required to carry this record, or such information shall be kept with the log records maintained on vessels not required to carry the Official Logbook. (See § 31.37-75 for entries required to be kept.)

§ 31.37-75 Records regarding cargo gear—TB/ALL.

(a) The cargo gear records described in this subpart shall be maintained on the vessel and shall be made available to Coast Guard officials upon request. These records shall be kept for the periods of time they are valid and, in

addition, until the next Coast Guard inspection for certification of the vessel. The certificates of manufacturers and/or testing laboratories, companies, or organizations shall be maintained on the vessel so long as the gear described in such certificates is on board the vessel.

(b) The records of all the inspections of cargo gear made by the ship's officers in accordance with § 31.37-70 shall be maintained on the vessel for periods of time which agree with those periods as covered by the current Coast Guard certificate of inspection issued to the vessel. These records shall show the dates of inspections, identify articles inspected, the conditions observed, and the name of the officer performing the inspection.

(c) The records of all tests and examinations conducted by or under the supervision of surveyors of the organizations or associations approved by the Commandant shall be maintained on the vessel.

(d) The Coast Guard will not issue cargo gear certificates and/or registers. The Coast Guard's records of inspections, tests, and examinations of a particular vessel's cargo gear made by a marine inspector or conducted under the supervision of the Coast Guard will be maintained in the Office of the Officer in Charge, Marine Inspection, having jurisdiction over the vessel at the time such work was performed. The original certificates or certified copies of certificates of manufacturers and/or testing laboratories, companies, or organizations for loose cargo gear, wire rope, or the annealing of gear shall be maintained on the vessel.

§ 31.37-80 Advance notice that cargo gear testing is desired—TB/ALL.

(a) The owner, agent, or master of a vessel shall give an advance notice when it is desired that the tests and examinations of cargo gear be made by or under the supervision of the marine inspectors. This advance notice shall be given to the Officer in Charge, Marine Inspection, in whose marine inspection zone the vessel is available for such inspection and examination.

(b) For the initial inspection and examination of cargo gear by the Coast Guard, the advance notice shall be to the cognizant Officer in Charge, Marine Inspection, as early as possible and shall include sketches and/or drawings showing each unit of cargo gear, the identification of component parts and the safe working loads. Copies of original certificates of manufacturers and/or testing laboratories, companies, or organizations maintained on the vessel may be accepted by the cognizant Officer in Charge, Marine Inspection, when satisfied such certificates properly describe the qualities of the component parts of the gear in question.

§ 31.37-85 Responsibility for conducting required tests and examinations—TB/ALL.

(a) The vessel's owners and/or operators shall furnish and pay the expenses required in conducting the tests and examinations prescribed by the regulations in this subpart, including the supplying of all instruments, other equipment, and personnel including personnel supervision for performance of all work required.

(b) The Coast Guard's participation in these required tests and examinations shall be confined to witnessing required tests and examinations with the view to determining whether or not the gear is satisfactory for the purpose intended. In the event it is determined that the gear is defective or unable to meet the standards set forth in this subpart, such gear, or portions thereof, shall be replaced to the satisfaction of the Officer in Charge, Marine Inspection, having jurisdiction over the vessel.

Subpart 31.40—Certificates Under International Convention for Safety of Life At Sea, 1960

§ 31.40-1 Application—T/ALL.

(a) The provisions of this subpart, with the exception of §§ 31.40-30 and 31.40-40(e), shall apply to all tankships on an international voyage other than nuclear vessels.

(b) The provisions of §§ 31.40-30, 31.40-35 and 31.40-40(e) shall apply to nuclear tankships on an international voyage.

§ 31.40-5 Cargo Ship Safety Construction Certificate—T/ALL.

(a) All tankships on an international voyage are required to have a Cargo Ship Safety Construction Certificate. This certificate shall be issued by the U.S. Coast Guard or the American Bureau of Shipping to certain vessels on behalf of the United States of America as provided

in Regulation 12, Chapter I, of the International Convention for Safety of Life at Sea, 1960.

(b) All such tankships shall meet the applicable requirements of this chapter for tankships on an international voyage.

§ 31.40–10 Cargo Ship Safety Equipment Certificate—T/ALL.

(a) All tankships on an international voyage are required to have a Cargo Ship Safety Equipment Certificate.

(b) All such tankships shall meet the applicable requirements of this chapter for tankships on an international voyage.

§ 31.40–15 Cargo Ship Safety Radiotelegraphy Certificate—T/ALL.

(a) The application for a Cargo Ship Safety Radiotelegraphy Certificate is made on FCC Form 801 to the local office of the Federal Communications Commission.

(b) Where applicable, a Cargo Ship Safety Radiotelegraphy Certificate will be issued by the Federal Communications Commission to a tankship meeting its requirements for a tankship fitted with a radiotelegraph installation.

§ 31.40–20 Cargo Ship Safety Radiotelephony Certificate—T/ALL.

(a) The application for a Cargo Ship Safety Radiotelephony Certificate is made on FCC Form 801 to the local office of the Federal Communications Commission.

(b) Where applicable, a Cargo Ship Safety Radiotelephony Certificate will be issued by the Federal Communications Commission to a tankship meeting its requirements for a tankship fitted with a radiotelephone installation.

§ 31.40–25 Exemption Certificate—T/ALL.

(a) A tankship may be exempted by the Commandant from complying with certain requirements of the Convention under his administration upon request made in writing to him and transmitted via the Officer in Charge, Marine Inspection.

(b) When an exemption is granted to a tankship by the Commandant under and in accordance with the Convention, an Exemption Certificate describing such exemption shall be issued through the appropriate Officer in Charge, Marine Inspection, in addition to other required certificates.

§ 31.40–30 Nuclear Cargo Ship Safety Certificate—T/ALL.

(a) All nuclear tankships on an international voyage are required to have a Nuclear Cargo Ship Safety Certificate.

(b) All such ships shall meet the applicable requirements of this chapter for nuclear vessels on an international voyage.

(c) Nuclear vessels cannot be exempted from any requirements of the Convention.

§ 31.40–35 Posting of Convention certificates—T/ALL.

(a) The certificates described in this subpart, or certified copies thereof, when issued to a vessel shall be posted in a prominent and accessible place on the tankship.

(b) The certificates shall be carried in a manner similar to that described in § 31.05–5 for a certificate of inspection.

§ 31.40–40 Duration of Convention certificates—T/ALL.

(a) A Cargo Ship Safety Equipment Certificate shall be issued for a period of not more than 24 months.

(b) A Cargo Ship Safety Construction Certificate shall be issued for a period of not more than 60 months.

(c) A Cargo Ship Safety Radiotelegraphy Certificate and a Cargo Ship Safety Radiotelephony Certificate shall be issued for a period of not more than 12 months.

(d) An Exemption Certificate shall not be valid for longer than the period of the certificate to which it refers.

(e) The Nuclear Cargo Ship Safety Certificate shall be issued for a period of not more than 12 months.

(f) A Convention certificate may be withdrawn, revoked, or suspended at any time when it is determined the vessel is no longer in compliance with applicable requirements. (See § 2.01–70 of this chapter for procedures governing appeals.)

§ 31.40–45 American Bureau of Shipping—T/ALL.

(a) The American Bureau of Shipping, with its home office at 45 Broad Street, New York, N.Y. 10004, is hereby designated as an organization duly authorized to issue the "Cargo Ship Safety Construction Certificate" to certain tankships on behalf of the United States of America as provided in Regulation 12,

Chapter I, of the International Convention for Safety of Life at Sea, 1960, and Executive Order 11239 and the certificate shall be subject to the requirements in this subpart. The American Bureau of Shipping is authorized to place the official seal of the United States of America on the certificate. This designation and delegation to the American Bureau of Shipping shall be in effect from May 26, 1965, until terminated by proper authority and notice of cancellation is published in the FEDERAL REGISTER.

(b) At the option of the owner or agent of a tankship on an international voyage and on direct application to the American Bureau of Shipping, the Bureau may issue to such tankship a Cargo Ship Safety Construction Certificate, having a period of validity of not more than 60 months after ascertaining that the tankship:

(1) Has met the applicable requirements of the Convention; and,

(2) Is currently classed by the Bureau and classification requirements have been dealt with to the satisfaction of the Bureau.

(c) When the Bureau determines that a tankship to which it has issued a Cargo Ship Safety Construction Certificate no longer complies with the Bureau's applicable requirements for classification, the Bureau shall immediately furnish to the Coast Guard all relevant information, which will be used by the Coast Guard to determine whether or not to withdraw, revoke or suspend the Cargo Ship Safety Construction Certificate.

(Sec. 25, 41 Stat. 998, as amended, sec. 701, 62 Stat. 731, as amended; 46 U.S.C. 881, 18 U.S.C. 701)

PART 32—SPECIAL EQUIPMENT, MACHINERY, AND HULL REQUIREMENTS

Subpart 32.01—Safety Requirements

Sec.

32.01–1 Means of escape—T/ALL.
32.01–5 Lifelines—TB/OCLB.
32.01–10 Rails—TB/ALL.
32.01–15 Guards at dangerous places—TB/ALL.

Subpart 32.05—Markings

32.05–1 Draft marks—TB/ALL.
32.05–5 Vessel's name on equipment—TB/ALL.
32.05–10 Name of tankship—T/ALL.
32.05–15 Name of tank barge—B/ALL.

Subpart 32.15—Navigation Equipment

Sec.

32.15–1 Fog sound signal devices—TB/ALL.
32.15–3 Navigation lights and shapes—TB/ALL.
32.15–5 Whistles—T/ALL.
32.15–10 Sounding machines—T/OCL.
32.15–15 Anchors for seagoing barge—B/OC.
32.15–20 Radiotelegraph and radiotelephone—T/ALL.
32.15–25 Radio direction finder—T/OC.

Subpart 32.20—Equipment Installations

32.20–1 Equipment installations on vessels during World War II—TB/ALL.
32.20–5 Pressure vacuum relief valves—TB/ALL.
32.20–10 Flame arresters—TB/ALL.
32.20–20 Liquid level gaging—T/ALL.

Subpart 32.25—General Alarm Systems

32.25–1 Alarm bells for tankships constructed on or after September 15, 1943—T/ALL.
32.25–5 Alarm bells for tankships constructed prior to September 15, 1943—T/ALL.
32.25–10 Alarm bells for manned barges—B/OC.

Subpart 32.30—Sound Powered Telephone, Voice Tube, and Engine Order Telegraph Systems

32.30–1 Voice tubes or telephone equipment—T/ALL.
32.30–5 Engine order telegraph equipment—T/ALL
32.30–10 Inspections—T/ALL.

Subpart 32.35—Main and Auxiliary Machinery

32.35–1 Boilers and machinery—TB/ALL
32.35–5 Installation of internal combustion engines—TB/ALL.
32.35–10 Steering apparatus on tank vessels—TB/ALL.

Subpart 32.40—Accommodations

32.40–1 Crew accommodations on tankships of 100 gross tons or over constructed after January 1, 1938—T/ALL.
32.40–5 Crew accommodations on tankships of less than 100 gross tons and manned tank barges constructed after January 1, 1938—TB/ALL.
32.40–10 Crew accommodations on tankships of 100 gross tons or over constructed after March 4, 1915, and prior to January 1, 1938—T/ALL.
32.40–15 Crew accommodations on tankships and manned tank barges not otherwise provided for—sulation—T/ALL.

Subpart 32.45—Electrical Installations

Sec.

32.45–1 Requirements for tank vessels the construction or conversion of which is contracted for on or after November 19, 1955—TB/ALL.
32.45–5 Requirements for tank vessels the construction or conversion of which was started on or after November 10, 1936, but prior to November 19, 1955—TB/ALL.
32.45–10 Requirements for tank vessels the construction or conversion of which was started prior to November 10, 1936—TB/ALL.

Subpart 32.50—Pumps, Piping, and Hose for Cargo Handling

32.50–1 Cargo pumps for tank vessels constructed on or after November 10, 1936—TB/ALL.
32.50–3 Cargo discharge—TB/ALL.
32.50–5 Cargo pump gauges on tank vessels constructed on or after November 10, 1936—TB/ALL.
32.50–10 Cargo pumps on tank vessels with independent cargo tanks which were constructed prior to November 10, 1936—TB/ALL.
32.50–15 Cargo piping on tank vessels constructed on or after July 1, 1951—TB/ALL.
32.50–20 Cargo piping for tank vessels constructed between November 10, 1936, and July 1, 1951—TB/ALL.
32.50–25 Cargo pumps and piping on tank vessels constructed prior to November 10, 1936—TB/ALL.
32.50–30 Cargo hose—TB/ALL.
32.50–35 Remote manual shutdown for internal combustion engine driven cargo pump on tank vessels—TB/ALL.

Subpart 32.52—Bilge Systems

32.52–1 Bilge pumps on tank vessels constructed or converted on or after November 19, 1952—TB/ALL.
32.52–5 Bilge piping for pump rooms and adjacent cofferdams on tank vessels constructed or converted on or after November 19, 1952—TB/ALL.
32.52–10 Bilge pumps and piping on tank vessels constructed or converted prior to November 19, 1952—TB/ALL.

Subpart 32.53—Inert Gas System

32.53–1 Application—T/ALL.
32.53–5 Operation—T/ALL.
32.53–10 General—T/ALL.
32.53–15 Approval—T/ALL.
32.53–20 Inert gas generators—T/ALL.
32.53–25 Gas supply—T/ALL.
32.53–30 Positive pressure—T/ALL.
32.53–35 Gas scrubber—T/ALL.
32.53–40 Scrubber: cooling water supply—T/ALL.
32.53–45 Blowers—T/ALL.
32.53–50 Gas distribution lines: non-return devices—T/ALL.
32.53–55 Stop valves—T/ALL.
32.53–60 Instrumentation—T/ALL.
32.53–65 Portable instruments—T/ALL.
32.53–70 Alarms and controls—T/ALL.
32.53–75 Gas main: Automatic shut-down valve—T/ALL.
32.53–80 Tank cleaning—T/ALL.
32.53–85 Instruction manual—T/ALL.

Subpart 32.55—Ventilation and Venting

32.55–1 Ventilation of tank vessels constructed on or after July 1, 1951—TB/ALL.
32.55–5 Ventilation of tank vessels constructed between November 10, 1936, and July 1, 1951—TB/ALL.
32.55–10 Ventilation of tank vessels contracted prior to November 10, 1936—TB/ALL.
32.55–15 Ventilation for hold spaces—TB/ALL.
32.55–20 Venting of cargo tanks of tankships constructed on or after July 1, 1951—T/ALL.
32.55–25 Venting of cargo tanks of tank barges constructed on or after July 1, 1951—B/ALL.
32.55–30 Venting of cargo tanks of tank vessels constructed between November 10, 1936, and July 1, 1951—TB/ALL.
32.55–35 Venting of cargo tanks on tank vessels constructed prior to November 10, 1936—TB/ALL.
32.55–40 [Reserved]
32.55–45 Venting of cofferdams and void spaces of tank vessels constructed on or after November 10, 1936—TB/ALL.
32.55–50 Ventilation of tankships that have a keel laying date on or after January 1, 1975—T/ALL.

Subpart 32.56—Structural Fire Protection for Tank Ships With a Keel Laying Date on or After January 1, 1975

32.56–1 Application—T/ALL.
32.56–5 General—T/ALL.
32.56–10 Navigation position I—T/ALL.
32.56–15 Deck spills—T/ALL.
32.56–20 Insulation of exterior boundaries: Superstructures and deckhouses—T/ALL.
32.56–21 Openings in exterior boundaries: Accommodation, service, and control spaces—T/ALL.
32.56–22 Openings in and insulation of boundaries: other spaces—T/ALL.
32.56–25 Category A machinery spaces: Windows and port lights—T/ALL.
32.56–30 Category A machinery spaces: Bulkheads and decks—T/ALL.
32.56–35 Doors—T/ALL.
32.56–40 Category A machinery spaces: Insulation—T/ALL.

Sec.
32.56-45 Draft stops—T/ALL.
32.56-50 Combustible veneers—T/ALL.
32.56-55 Control spaces—T/ALL.
32.56-60 Ventilation ducts—T/ALL.

Subpart 32.57—Structural Fire Protection for Tank Vessels Contracted for On or After January 1, 1963

32.57-1 Application—TB/ALL.
32.57-5 Definitions—TB/ALL.
32.57-10 Construction—TB/ALL.

Subpart 32.60—Hull Requirements for Tank Vessels Constructed On or After July 1, 1951

32.60-1 Scantlings, material, and workmanship—TB/ALL.
32.60-5 Subdivision of cargo space—TB/ALL.
32.60-10 Segregation of cargo; Grade A, B, C, or D—TB/ALL.
32.60-15 Segregation of cargo; Grade E—TB/ALL.
32.60-20 Pumprooms on tank vessels carrying Grade A, B, C, D and/or E liquid cargo—TB/ALL.
32.60-25 Living quarters—TB/ALL.
32.60-30 Tank vessels with independent tanks—TB/ALL.
32.60-35 Tank vessels carrying Grade A liquid cargo—TB/ALL.
32.60-40 Construction and testing of cargo tanks and bulkheads—TB/ALL.
32.60-45 Segregation of spaces containing the emergency source of electric power—TB/ALL.

Subpart 32.63—Hull and Cargo Tank Requirements for Tank Barges Constructed or Converted On or After July 1, 1964, and Carrying Certain Dangerous Bulk Cargoes

32.63-1 Application—B/ALL.
32.63-5 Barge hull classifications—B/ALL.
32.63-8 Alternative arrangements—B/ALL.
32.63-10 Rakes and coamings—B/ALL.
32.63-15 Subdivision and stability—B/ALL.
32.63-20 Hull structure—B/ALL.
32.63-25 Cargo tanks and supports—B/ALL.

Subpart 32.65—Hull Requirements for Tank Vessels Constructed On or After November 10, 1936, and Prior to July 1, 1951

32.65-1 Application—TB/ALL.
32.65-5 Scantlings, material, and workmanship—TB/ALL.
32.65-10 Subdivision of cargo space—TB/ALL.
32.65-15 Cofferdams—TB/ALL.
32.65-20 Pumprooms—TB/ALL.
32.65-25 Living quarters—TB/ALL.
32.65-30 Tank vessels with independent tanks—TB/ALL.
32.65-35 Tank vessels carrying Grade A liquids—TB/ALL.
32.65-40 Construction and testing of cargo tanks and bulkheads—TB/ALL.

Subpart 32.70—Hull Requirements for Steel Hull Tank Vessels Constructed Prior to November 10, 1936

Sec.
32.70-1 Application—TB/ALL.
32.70-5 Hull requirements; general—TB/ALL.
32.70-10 Cofferdams—TB/ALL.
32.70-15 Pumprooms—TB/ALL.
32.70-20 Pump-engine compartment—TB/ALL.
32.70-25 Cargo tanks—TB/ALL.

Subpart 32.75—Hull Requirements for Wood Hull Tank Vessels Constructed Prior to November 10, 1936

32.75-1 Application—TB/ALL.
32.75-5 Hull requirements; general—TB/ALL.
32.75-10 Cargo tanks—TB/ALL.
32.75-15 Electric bonding and grounding for tanks—TB/ALL.
32.75-20 Hold spaces and bulkheads—TB/ALL.

Subpart 32.80—Tank Barges Constructed of Materials Other Than Steel or Iron

32.80-1 General requirements—B/ALL.

Subpart 32.85—Lamp and Paint Rooms and Similar Compartments on Tankships

32.85-1 Fireproofing of lamp, oil and paint rooms—T/ALL.

AUTHORITY: The provisions of this Part 32 issued under R.S. 4405, as amended, 4417a, as amended, 4462, as amended, sec. 6(b)(1), 80 Stat. 938; 46 U.S.C. 375, 391a, 416, 49 U.S.C. 1655(b); 49 CFR 1.46(b) (35 F.R. 4959); sec. 3, 68 Stat. 675; 50 U.S.C. 198; E.O. 11239, July 31, 1965, 30 F.R. 9671, 3 CFR, 1965 Supp.

SOURCE: The provisions of this Part 32 contained in CGFR 65-50, 30 F.R. 16671, Dec. 30, 1965, unless otherwise noted.

Subpart 32.01—Safety Requirements

§ 32.01-1 Means of escape—T/ALL.

On all tankships where the plans and arrangements will possibly permit, all passageways leading to living quarters, or places where anyone may be regularly employed, shall be provided with not less than two avenues of escape so located that if one of such avenues is not available another may be. The locality and arrangement of such additional means of escape shall be determined by the inspectors as will in their judgment best carry out the purpose for which this provision was made.

§ 32.01-5 Lifelines—TB/OCLB.

On all tank vessels where the distance is more than 150 feet between deck

houses, a wire cable shall be stretched between the deck houses at all times when the vessel is loaded and being navigated, this cable to be not less than 5 feet from the deck; and there shall be attached at all times to the cable a traveler with a line of sufficient continuous length to insure its operation in order that communication between both ends of the vessel may be facilitated at all times: *Provided,* That in addition to the traveler with the endless whip, as many loose rings with lanyards attached may be placed on the cable as may be deemed necessary by the master in charge of the vessel: *Provided further,* That a fore and aft raised bridge shall be accepted in lieu of the wire cable and traveler.

§ 32.01-10 Rails—TB/ALL.

(a) All tank vessels, except unmanned tank barges, contracted for on or after July 1, 1969, shall have efficient guard rails or bulwarks on decks and bridges. The height of rails or bulwarks shall be at least 39½ inches from the deck except that where this height would interfere with the normal operation of the vessel, a lesser height may be approved by the Commandant. At exposed peripheries of the freeboard and superstructure decks the rails shall be in at least three courses including the top. The opening below the lowest course shall not be more than 9 inches. The courses shall not be more than 15 inches apart. In the case of ships with rounded gunwales, the guard rail supports shall be placed on the flat of the deck. On other decks and bridges the rails shall be in at least two courses, including the top, approximately evenly spaced. All rails shall consist of solid or tubular sections or chains or wire rope or a combination thereof.

(b) Where it can be shown to the satisfaction of the Commandant that a vessel is engaged exclusively on voyages of a sheltered nature, the provisions of paragraph (a) of this section may be relaxed.

(c) Tank vessels contracted for prior to July 1, 1969, except unmanned tank barges, assigned a deeper load line under Part 42 of Subchapter E (Load Lines) of this chapter shall have efficient guard rails or bulwarks as required by paragraph (a) of this section. Otherwise, existing rails and bulwarks previously approved will be considered satisfactory so long as they are maintained in good condition. Minor repairs and alterations may be made to the same standard as the original construction.

[CGFR 69-72, 34 F.R. 17481, Oct. 29, 1969]

§ 32.01-15 Guards at dangerous places—TB/ALL.

All exposed and dangerous places such as gears and machinery shall be properly protected with covers, guards or rails in order that the danger of accidents may be minimized. On vessels equipped with radio communication, the lead-ins shall be efficiently incased or insulated to insure against accidental shock. Such lead-ins shall be located so as not to interfere with the launching of lifeboats and liferafts.

Subpart 32.05—Markings

§ 32.05-1 Draft marks—TB/ALL.

(a) All tank vessels of 50 gross tons and over shall have the draft of the vessel plainly and legibly marked upon the stem and upon the sternpost or rudderpost or at any place at the stern of the vessel as may be necessary for easy observance. The draft shall be taken from the bottom of the keel at the marks to the surface of the water, the bottom of the mark to indicate the draft in feet.

(b) In cases where the keel does not extend forward or aft to the location of the draft marks, due to raked stem or cutaway skeg, the datum line from which the drafts shall be taken, shall be obtained by projecting the line of the bottom of the keel forward or aft, as the case may be, to the location of the draft marks.

(c) In cases where a vessel may have a skeg or other appendage extending locally below the line of the keel, the draft at the end of the vessel adjacent to such appendage shall be measured to a line tangent to the lowest part of such appendage and parallel to the line of the bottom of the keel.

§ 32.05-5 Vessel's name on equipment—TB/ALL.

The equipment of all tank vessels, such as fire hose, fire axes, lifeboats, liferafts, life preservers, and lifeboats, shall be painted or branded with the name of the vessel upon which they are used.

§ 32.05-10 Name of tankship—T/ALL.

Every tankship shall have the name marked upon each bow and upon the

stern, and the home port shall also be marked upon the stern. The name shall be in a light color on a dark ground, or in a dark color on a light ground, and shall be distinctly visible. The smallest letters used shall be not less than 4 inches in size. In addition, every tankship shall have her name conspicuously displayed in distinct plain letters, of not less than 6 inches in size, on each outer side of the pilothouse.

[CGFR 65-50, 30 F.R. 16657, Dec. 30, 1965, as amended by CGFR 72-104R, 37 F.R. 14233, July 18, 1972]

§ 32.05-15 Name of tank barge—B/ALL.

Every tank barge shall have its name or number carved, punch-marked, or welded on the main beam, inside the cargo hatch, or other suitable permanent part of the vessel's structure for the purpose of identification. The vessel's name or number shall be so displayed at the highest part of the vessel's hull or permanent structure that the name or number can be seen from either side.

[CGFR 65-50, 30 F.R. 16657, Dec. 30, 1965, as amended by CGFR 72-104R, 37 F.R. 14233, July 18, 1972]

Subpart 32.15—Navigation Equipment

§ 32.15-1 Fog sound signal devices—TB/ALL.

(a) The efficient fog bell required upon vessels by law shall be held to mean a bell not less than 8 inches in diameter from outside to outside and constructed of bronze or brass or other material equal thereto in tone and volume of sound, and located where the sound shall be the least obstructed.

(b) In addition to the bell required in paragraph (a), all tankships of over 350 feet in length, other than those operating exclusively on the Great Lakes or the inland waters of the United States, shall be provided with a fog gong which will produce a sound easily distinguishable from the bell required by paragraph (a) and which shall have a range of audibility approximating that of the bell.

§ 32.15-3 Navigation lights and shapes—TB/ALL.

(a) *When required.* All tank ships shall be equipped with navigation lights and shapes as prescribed by law and regulation and shall display such navigation lights and shapes whenever prescribed by law or regulation. Tank barges need not be equipped with navigation lights and shapes, but such tank barges shall display navigation lights and shapes whenever prescribed by law or regulation.

(b) *Light screens.* Light screens required by the applicable Rules of the Road for port and starboard side lights shall be painted with a glossy black paint and shall project not less than three (3) feet forward of the center of the light source.

[CGFR 68-32, 33 F.R. 5713, Apr. 12, 1968]

§32.15-5 Whistles—T/ALL.

(a) Each tankship shall be provided with an efficient whistle sounded by steam or by some substitute for steam to give the necessary whistle signals. All whistles shall be placed at an elevation of not less than 6 feet above the top of the pilothouse, where the clearance for passing under bridges will permit it. Tankships navigating the Red River of the North, Yukon, and similar rivers, and rivers whose waters flow in the Gulf of Mexico, and tankships of less than 100 gross tons may have their whistles located not less than 2 feet above the tops of their pilothouses. Such whistles or substitutes shall be satisfactory in sound and source of power for the purpose intended.

(b) On tankships contracted for on and after November 19, 1955 means shall be provided to operate the whistle from a position adjacent to the main steering station and from the steering station on top of the pilothouse where such steering station is fitted. Details of the whistle operating devices shall meet the requirements of Subparts 113.05 and 113.65 of Subchapter J (Electrical Engineering) of this chapter.

§ 32.15-10 Sounding machines—T/OCL.

All mechanically propelled vessels in ocean or coastwise service of 500 gross tons and over, and all mechanically propelled vessels in Great Lakes service of 500 gross tons and over certificated for service on the River St. Lawrence eastward of the lower exit of the St. Lambert Lock at Montreal, Canada, shall be fitted with an efficient electronic deep-sea sounding apparatus and a deep-sea hand lead. All other mechanically propelled vessels in Great Lakes service

of 1,500 gross tons and over shall carry a deep-sea hand lead.

[CGFR 66–33, 31 F.R. 15267, Dec. 6, 1966]

§ 32.15–15 Anchors for seagoing barge—B/OC.

(a) Every manned seagoing barge shall be equipped with at least one anchor with suitable chain or cable to be at least equivalent to the requirements of the American Bureau of Shipping rules (see § 31.10–1 of this subchapter).

[CGFR 68—32, 33 F.R. 5713, Apr. 12, 1968]

§ 32.15–20 Radiotelegraph and radiotelephone—T/ALL.

(a) Radiotelegraph and radiotelephone installations are required on certain tankships. Details of the application of these requirements, as well as the details of the installations, shall be as required by the statutes and regulations under the jurisdiction of the Federal Communications Commission.

All vessels on an international voyage that are required to carry a radiotelegraph or radiotelephone in accordance with Chapter IV of the Safety of Life at Sea Convention, 1960, must carry the International Code of Signals.

(b) For the communication system required with the radiotelegraph and radiotelephone installations on a tank ship contracted for on or after November 19, 1955 see Subparts 113.05 and 113.30 of Subchapter J (Electrical Engineering) of this chapter.

§ 32.15–25 Radio direction finder—T/OC.

(a) All tankships of 1,600 gross tons and over on an international voyage or in ocean service shall be fitted with a radio direction finder. Details of the installation shall be as required by the statutes and regulations under the jurisdiction of the Federal Communications Commission.

(b) For the communication system required with the radio direction finder installation on a tankship contracted for on or after November 19, 1955 see Subparts 113.05 and 113.30 of Subchapter J (Electrical Engineering) of this chapter.

[CGFR 65—50, 30 F.R. 16671, Dec. 30, 1965, as amended by CGFR 69–127, 35 F.R. 9975, June 17, 1970]

§ 32.15–30 Radar—T/OC.

All tankships of 1,600 gross tons and over in ocean or coastwise service must be fitted with a marine radar system for surface navigation. Facilities for plotting radar readings must be provided on the bridge.

§ 32.15–35 Magnetic Compass and Gyrocompass—T/OC.

(a) All tankships in ocean or coastwise service must be fitted with a magnetic compass.

(b) All tankships of 1,600 gross tons and over in ocean or coastwise service must be fitted with a gyrocompass in addition to the magnetic compass.

(c) Each tankship must have an illuminated repeater for the gyrocompass required under paragraph (b) that is at the main steering stand unless the gyrocompass is illuminated and is at the main steering stand.

Subpart 32.20—Equipment Installations

§ 32.20–1 Equipment installations on vessels during World War II—TB/ALL.

Boilers, pressure vessels, machinery, piping, electrical and other installations, including lifesaving, firefighting and other safety equipment, installed on vessels during the Unlimited National Emergency declared by the President on May 27, 1941, and prior to the termination of Title V of the Second War Powers Act, as extended (sec. 501, 56 Stat. 180, 50 U.S.C. 635), which do not fully meet the detailed requirements of the regulations in this chapter, may be continued in service if found to be satisfactory by the Commandant for the purpose

intended. In each instance prior to final action by the Commandant, the Officer in Charge, Marine Inspection, shall notify Headquarters of the facts in the case, together with recommendations relative to suitability for retention.

§ 32.20–5 Pressure vacuum relief valves—TB/ALL.

The pressure vacuum relief valve shall be of a type and size approved by the Commandant for the purpose intended. For specifications and procedures re approval, see Subpart 162.017 of Subchapter Q (Specifications) of this chapter.

§ 32.20–10 Flame arresters—TB/ALL.

Flame arrester shall be of a type and size approved by the Commandant for the purpose intended. For specifications and procedures re approval, see Subpart 162.016 of Subchapter Q (Specifications) of this chapter.

§ 32.20–20 Liquid level gaging—T/ALL.

On tankships, the construction or conversion of which is started on or after July 1, 1951, a method for determining the level of the liquid in a cargo tank without opening ullage holes, cargo hatches, or Butterworth plates, shall be provided on all tankships certificated for the carriage of Grade A liquids: *Provided,* That ullage holes fitted with sounding pipes tightly secured to the underside of the tank tops, opens at the bottom, and extending to within 18 inches or less of the bottom of the tank shall be considered as complying with the foregoing requirement.

Subpart 32.25—General Alarm Systems

§ 32.25–1 Alarm bells for tankships constructed on or after September 15, 1943—T/ALL.

(a) All tankships of over 100 gross tons, the construction of which is begun on or after September 15, 1943, shall have all sleeping accommodations and machinery spaces equipped with a sufficient number of alarm bells so located as to warn all occupants.

(b) Four manually operated contact makers shall be provided in accessible locations for operating the general alarm system. The contact makers shall be provided at the following locations:

(1) Wheelhouse;

(2) Space where feeder distribution panel is located;

(3) Deck officers' quarters furthest from the engineroom; and

(4) Engineroom.

(c) The alarm system installation shall meet the requirements of Subparts 113.05 and 113.25 of Subchapter J (Electrical Engineering) of this chapter, except that vessels the construction of which was started prior to November 19, 1955, need only meet the requirements of § 113.25-90 thereof and the number and location of the contact makers shall comply with paragraph (b) of this section.

[CGFR 65-50, 30 F.R. 16671, Dec. 30, 1965, as amended by CGFR 67-87, 32 F.R. 20814, Dec. 27, 1967]

§ 32.25-5 Alarm bells for tankships constructed prior to September 15, 1943—T/ALL.

(a) All tankships, the construction of which was begun prior to September 15, 1943, shall have all sleeping accommodations equipped with a sufficient number of alarm bells so located as to warn all the occupants. The alarm bells, if electric, shall be operated from an open switch from the pilothouse or bridge. The bells shall be of such size, character, and construction as to provide an alarm throughout the spaces for which they are provided.

(b) The alarm system installation shall meet the requirements of § 113.25-90 of Subchapter J (Electrical Engineering) of this chapter.

§ 32.25-10 Alarm bells for manned barges—B/OC.

Each tank barge of over 100 gross tons, where the crew is divided into watches for the purpose of steering the vessel, shall be provided with a suitable alarm bell installation.

Subpart 32.30—Sound Powered Telephone, Voice Tube, and Engine Order Telegraph Systems

§ 32.30-1 Voice tubes or telephone equipment—T/ALL.

(a) Tankships shall be equipped with an efficient means of communication between the pilothouse and (1) the engineroom, (2) the steering gear room, and (3) the emergency steering station.

(b) Where tankships are equipped with a gyro compass system and/or radar plan position indicator, an efficient means of communication shall be provided between the pilothouse and the master compass and/or radar plan position indicator when such equipment is remotely located from the pilothouse.

(c) Where tankships are equipped with a radio and/or a radio direction finder, an efficient means of communication shall be provided between the pilothouse and this equipment as covered in § 113.30-5(e) of Subchapter J (Electrical Engineering) of this chapter when such equipment is remotely located from the pilothouse.

(d) The efficient means of communication referred to in this section shall be either a voice tube or sound powered telephone system.

(e) Telephone and voice tube equipment and the installation thereof shall meet the requirements of Subparts 113.05 and 113.30 of Subchapter J (Electrical Engineering) of this chapter except that tankships the construction of which was started prior to November 19, 1955, need only meet the requirements of § 113.30-90.

§ 32.30-5 Engine order telegraph equipment—T/ALL.

(a) Tankships shall be equipped with an efficient means of transmitting engine orders from the pilothouse to the engineroom and of transmitting acknowledgments of such engine orders from the engine room to the pilothouse.

(b) The efficient means of transmitting engine orders and installation of the equipment shall meet the requirements of Subparts 113.05 and 113.35 of Subchapter J (Electrical Engineering) of this chapter except that tankships the construction of which was started prior to November 19, 1955, need meet only the requirements of § 113.35-90.

§ 32.30-10 Inspections—T/ALL.

All communication equipment between the pilothouse, engineroom, steering gear room, and the emergency steering station shall be inspected and tested in accordance with the requirements of § 111.05-10(c)(16) and (d)(1) of Subchapter J (Electrical Engineering) of this chapter.

Subpart 32.35—Main and Auxiliary Machinery

§ 32.35–1 Boilers and machinery—TB/ALL.

Boilers, main and auxiliary machinery, and piping systems shall conform to the requirements of Subchapter F (Marine Engineering) of this chapter, except as otherwise provided for in this subchapter.

§ 32.35–5 Installation of internal combustion engines—TB/ALL.

Each internal combustion engine located on the weather deck shall be provided with a ventilated metal hood or, where space permits, with a well-ventilated metal housing of sufficient size to allow for proper operation and maintenance.

§ 32.35–10 Steering apparatus on tank vessels—TB/ALL.

Tank vessels shall be provided with steering apparatus as required by Part 58 of Subchapter F (Marine Engineering) of this chapter.

[CGFR 68–82, 33 F.R. 18805, Dec. 18, 1968]

§ 32.35–15 Installation of air compressors on tank vessels contracted for on or after June 15, 1977—TB/ALL.

No tank vessel, except an oil pollution clean-up vessel, that carries petroleum products grades A thru D contracted for on or after June 15, 1977 may have an air compressor or an air compressor intake installed in any of the following cargo areas:

(a) A cargo handling room.

(b) An enclosed space containing cargo piping.

(c) A space in which cargo hose is stowed.

(d) A space adjacent to a cargo tank or cargo tank hold.

(e) A space within three meters of any of the following:

(1) A cargo tank opening.

(2) An outlet for cargo gas or vapor.

(3) A cargo pipe flange.

(4) A cargo valve.

(5) An entrance or ventilation opening to a cargo handling room.

(f) The cargo deck space. For the purpose of this paragraph, "cargo deck space" means the volume bounded by the open deck over the cargo tank block, including all ballast tanks within the cargo tank block, extending to the full width of the vessel, plus three meters (about 10 feet) fore and aft of the cargo tank block and up to a height of 2.4 meters (about 8 feet) above the deck.

(g) An enclosed space having an opening into a location described in paragraphs (a)–(f) of this section.

(h) A location similar to those described in paragraphs (a)–(g) of this section in which cargo vapors or gases may be present.

Subpart 32.40—Accommodations

§ 32.40–1 Crew accommodations on tankships of 100 gross tons or over constructed after January 1, 1938—T/ALL.

On all tankships of 100 gross tons and over, the construction of which is begun after January 1, 1938, the minimum requirements relative to construction, location, and equipment of crew accommodations are as follows:

(a) *Sleeping quarters.* At least 120 cubic feet of space and not less than 16 square feet of deck areas shall be allotted to each member of the crew for sleeping purposes. In measuring sleeping quarters allotted to crews of vessels, the Officer in Charge, Marine Inspection, shall not deduct from the total volume or from the deck area any equipment contained therein which is provided for the exclusive use of the crew. Not more than one bunk shall be placed above another, and the lower bunk shall be at least 12 inches above the deck. The upper bunk shall be located as nearly as practicable midway between the lower bunk and the lower side of the deck beams overhead.

(b) *Toilet and washing facilities.* (1) Each such tankship shall be provided with at least one washbasin, one bathtub or shower, and one toilet for each eight members, or portion thereof, in the crew to be accommodated. The crew to be accommodated shall include all members who do not occupy rooms to which private facilities are attached.

(2) When the engineroom crew, exclusive of licensed officers and others separately provided for, exceeds eight, separate washing facilities shall be provided.

(3) Vessels contracted for after January 1, 1949, shall have the toilet rooms separate from the washrooms, and at least one washbasin shall be fitted in each toilet room.

(c) *Hospital accommodations.* (1) Except as specifically modified by subparagraph (4) of this paragraph, each tank vessel which in the ordinary course of its trade makes voyages of more than 3 days' duration between ports and which carries a crew of 12 or more, shall be provided with a hospital space. This space shall be situated with due regard to the comfort of the sick so that they may receive proper attention in all weathers.

(2) The hospital shall be suitably separated from other spaces and shall be used for the care of the sick and for no other purposes.

(3) The hospitals shall be fitted with berths in the ratio of 1 berth to every 12 members of the crew or portion thereof who are not berthed in single-occupancy rooms, but the number of berths need not exceed 6.

(4) On vessels in which the crew is berthed in single occupancy rooms a hospital space will not be required: *Provided,* That one room shall be designated and fitted for use as a treatment and/or isolation room. Such room shall meet the following standards:

(i) The room must be available for immediate medical use;

(ii) The room must be accessible to stretcher cases;

(iii) The room must have a single berth or examination table so arranged that it can be made accessible from both sides when necessary; and,

(iv) A washbasin with hot and cold running water must be installed either in or immediately adjacent to the space and other required sanitary facilities must be conveniently located.

(d) *Location, construction and equipment.* (1) Crew accommodations shall not be located forward of the collision

bulkhead, or where there will be undue risk to members of the crew in getting to stations.

(2) Where crew quarters abut galley, boiler, or engineroom bulkheads, such bulkheads shall be insulated with fire-resistive material to reduce transmission of heat.

(3) Insofar as practicable, crew quarters shall be so located or constructed that they will be protected against objectionable odors of cargo, fuel tanks, paint lockers, oil rooms, bilges, toilets, etc.

(4) All crewspaces shall be adequately lighted, heated and ventilated. The lighting shall comply with the requirements of § 111.50–15 and Subpart 111.60 of Subchapter J (Electrical Engineering) of this chapter.

(5) Bare metal surfaces of ship's sides and metal weather decks overhead which are not decked over with wood externally, shall be covered with suitable fire-resistive material to aid in keeping the crew's quarters dry.

(6) In the ventilation of crew accommodations provision shall be made for the ingress of fresh air and for the egress of impure air; it shall be adequate for the purpose intended, and so arranged as to be effective in any ordinary weather conditions, and to distribute fresh air without undue discomfort to the occupants. Where natural ventilation is provided, each inlet shall have an area of at least 6 square inches for each person accommodated, the outlet to be at least equal in size to the inlet. In no case shall any one such inlet or outlet have a cross sectional area of less than 24 square inches.

(7) Mechanical ventilation may be provided if such system is equal in effectiveness to the requirements for natural ventilation and is approved by the Commandant. For remote control of mechanical ventilation see § 111.50–5 of Subchapter J (Electrical Engineering) of this chapter.

(8) Messrooms shall be provided for both officers and crew, and shall be separate from each other where space and conditions will permit. Such messrooms shall be sufficient in size to accommodate all persons allotted to such space: *Provided, however,* That this subparagraph need not apply to vessels operating on the Great Lakes, lakes, bays and sounds, or rivers.

(9) All washbasins, shower baths, or tubs required by the regulations in this subchapter shall be equipped with proper plumbing, including hot and cold running water. Washbasins for the crew may be located in the crew's sleeping quarters, if properly installed, equipped with proper plumbing for draining and supplied with hot and cold running water.

(10) All toilets shall be installed and equipped with the proper plumbing for flushing. Where more than one toilet is located in a space or compartment, each toilet shall be separated with a screen constructed of fire-resistive material to afford privacy. Such screens may be installed so as to be open at top and bottom for ventilation purposes.

(11) Floors of toilets and washrooms shall be covered with cement, tile, or other suitable covering.

(12) On each such tankship there shall be provided at least one sink or other suitable means for washing clothes.

(13) Each hospital shall have a toilet, washbasin, and bathtub or shower conveniently situated.

(14) A clothes locker shall be provided for each person accommodated of a size not less than 12″ x 21″ x 5′ high and so placed as to be readily accessible.

(15) Living accommodations shall be properly screened to exclude insects.

[CGFR 65–50, 30 F.R. 16671, Dec. 30, 1965, as amended by CGFR 68–32, 33 F.R. 5713, Apr. 12, 1968]

§ 32.40–5 Crew accommodations on tankships of less than 100 gross tons and manned tank barges constructed after January 1, 1938—TB/ALL.

All tankships of less than 100 gross tons and all manned tank barges, the construction of which is begun after January 1, 1938, shall be provided with crew accommodations of sufficient size, adequate construction, and with suitable equipment to provide for the protection and accommodations of its crew in a manner practicable for the size, facilities and service of the vessel, and consistent with the principles underlying the requirements for crew accommodations on tankships of 100 gross tons or more.

§ 32.40–10 Crew accommodations on tankships of 100 gross tons or over constructed after March 4, 1915, and prior to January 1, 1938—T/ALL.

On all tankships of 100 gross tons or over the construction of which was begun after March 4, 1915, and prior to January 1, 1938, the crew accommodations shall be of a character and number

in compliance with § 32.40–1 (a), (b), (c), except that separate washing facilities are not required where the engineroom crew, exclusive of licensed officers, and others separately provided for, does not exceed 10. In cases where an improvement is necessary in the sanitary conditions of such vessels, § 32.40–1(d) will also apply in principle insofar as space and conditions will permit.

§ 32.40–15 Crew accommodations on tankships and manned tank barges not otherwise provided for—TB/ALL.

All tankships and all manned tank barges not heretofore provided for shall have crew quarters and washing and toilet facilities in keeping with the age, size, facilities and service of the vessel, and suitable for the accommodations and protection of the crew.

Subpart 32.45—Electrical Installations

§ 32.45–1 Requirements for tank vessels the construction or conversion of which is contracted for on or after November 19, 1955—TB/ALL.

(a) *Application.* The requirements of this section apply to all tank vessels contracted for on or after November 19, 1955.

(b) *Additional requirements.* Additional requirements are contained in Subchapter J (Electrical Engineering) of this chapter.

(c) *Cable location.* Where practicable, electric cable shall be located well inboard from the sides, preferably along or near the center line, to reduce the risk of injury in the event of collision, but it shall be kept clear of cargo tank openings. Specific additional cable location requirements for cargo handling rooms and enclosed spaces immediately above or adjacent to cargo tanks are contained in paragraph (f) (3) of this section.

(d) *Portable equipment.* Illumination may be obtained in any compartment by the use of approved explosion-proof, self-contained, battery-fed lamps. Otherwise, no portable electrical equipment of any type shall be used in bulk cargo tanks, fuel oil tanks, cargo handling rooms, or enclosed spaces immediately above or adjacent to bulk cargo tanks unless all the following conditions are met:

(1) The compartment itself is gasfree;

(2) The compartments adjacent and diagonally adjacent are either (i) gasfree, (ii) inerted, (iii) filled with water, (iv) contain Grade E liquid and are closed and secured, or (v) are spaces in which flammable vapors and gases normally are not expected to accumulate; and,

(3) All other compartments of the vessel in which flammable vapors and gases normally may be expected to accumulate are closed and secured.

(e) *Explosion - proof installations.* Where explosion-proof equipment is required, the equipment and installation thereof shall comply with § 111.60–40 of Subchapter J (Electrical Engineering) of this chapter.

(f) *Installation requirements on tank vessels handling Grade A, B, C, or D liquid cargo.* The requirements of this paragraph apply only to tank vessels handling Grade A, B, C, or D liquid cargo.

(1) *Equipment location.* Power devices, switchboards, distribution panels, switches, fuses, and other circuit interrupting devices shall not be installed in cargo handling rooms nor in enclosed spaces immediately above or adjacent to cargo tanks. Storage batteries shall not be located in cargo handling rooms.

(2) *Lighting.* Lighting in cargo handling rooms shall be accomplished either through permanently fixed glass lenses fitted in the bulkhead and/or overhead, or by the use of explosion-proof fixtures when specifically approved by the Commandant. For detailed requirements see § 111.70–10(c) of Subchapter J (Electrical Engineering) of this chapter.

(3) *Cable.* Through runs of electric cable, regardless of how they may be protected, are prohibited in cargo handling rooms, except where permitted by § 111.65–3 of Subchapter J (Electrical Engineering) of this chapter. In any enclosed space immediately above or adjacent to cargo tanks other than cargo handling rooms, through runs of electric cable are permitted.

(4) *Weather decks.* Motors, their control equipment, and other electrical equipment and installations located on or above the weather decks within 10 feet of the cargo tank openings, cargo handling room doors or cargo handling room ventilation outlets, or cargo tank vent terminations shall be explosion-proof. Explosion-proof equipment installed in locations exposed to the weather shall be watertight or shall be enclosed in watertight housings, or protected against the entrance of water by other approved means.

(4–a) *Additional requirements.* In addition to the requirements of paragraph

(f)(4) of this section, electrical equipment on each tank ship that is contracted for after May 22, 1975, must be explosion proof if it is located in the weather in the cargo deck space, in enclosed spaces having an opening or access located within the cargo deck space, or in enclosed spaces having an opening or access located within three meters (approx. 10 feet) of a cargo tank vent outlet, a cargo tank ullage opening, a cargo pipe flange, a cargo valve, a cargo pumproom entrance, or a cargo pumproom ventilation opening. For the purpose of this paragraph (f)(4) the term "cargo deck space" means the volume bounded by the open deck over the cargo tank block (including all ballast tanks within the cargo tank block), extending to the full width of the vessel, plus three meters (approx. 10 feet) fore and aft of the cargo tank block and up to a height of 2.4 meters (approx. 8 feet) above the deck.

(5) *General cargo spaces.* General cargo spaces located beyond the segregation spaces of tank vessels carrying Grade A, B, C, or D liquid cargo shall have no special restrictions in regard to electrical installations.

(g) *Installation requirements on vessels handling Grade E liquid cargo.* The requirements of this paragraph apply only to vessels handling Grade E liquid cargo.

(1) *Electrical installations.* There are no restrictions in regard to the electrical installations in cargo handling rooms and enclosed spaces of tank vessels carrying only Grade E liquid cargo, except that storage batteries shall not be located in cargo handling rooms.

(h) *Cargo pumproom handling Grade A, B, C, or D liquid cargo.* (1) Lighting in cargo pumprooms handling Grade A, B, C, or D liquid cargo shall be accomplished either through permanently fixed glass lenses fitted in the bulkhead and/or overhead, or by the use of explosion-proof fixtures, except that explosion-proof fixtures may be installed only under certain conditions. For detail requirements see § 111.70-10(c) of Subchapter J (Electrical Engineering) of this chapter.

(2) Through runs of electric cable regardless of how they may be protected, are prohibited, except that cables which are a part of the intrinsically safe circuitry of an approved installation are specifically exempt from this restriction.

[CGFR 68-65, 33 F.R. 19983, Dec. 28, 1968, as amended by CGFR 72-35, 37 F.R. 4960, Mar. 8, 1972; CGD 74-118, 40 FR 17754, Apr. 22, 1975]

§ 32.45-5 Requirements for tank vessels the construction or conversion of which was started on or after November 10, 1936 but prior to November 19, 1955—TB/ALL.

(a) *Application.* The requirements of this section shall apply to all tank vessels the construction or conversion of which was started on or after November 10, 1936, but prior to November 19, 1955.

(b) *General.* The electrical installation shall be in accordance with this section, and to the extent that such installation is not covered by this section it shall be at least equivalent to the Commandant's general requirements.

(c) *Existing arrangements.* Existing arrangements, materials, and facilities previously approved will be considered satisfactory so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. For detailed requirements see § 111.70-90(a) of Subchapter J (Electrical Engineering) of this chapter, minor repairs and minor alterations may be made to the same standard as the original installation.

(d) *New installations.* New installations or major replacements shall meet the applicable requirements of § 32.45-1.

(e) *Location of storage batteries.* Storage batteries shall not be located in cargo pumprooms. The space in which they are located shall be well ventilated and they shall be protected against mechanical and electrical injury including short circuiting and overloading. Batteries shall be secured against movement, and acid batteries shall be set in lead-lined trays at least 3 inches deep of at least 4-pound sheet lead.

(f) *Installations made during the Unlimited National Emergency.* Electrical equipment installed during the Unlimited National Emergency as defined in § 110.25-5 of Subchapter J (Electrical Engineering) of this chapter and not complying with the requirements in this subchapter may be continued in service if found to be satisfactory by the Commandant for the purpose intended.

(g) *Cargo pumprooms and enclosed spaces of tank vessels constructed on or after July 1, 1951, but prior to November 19, 1955*—(1) *Application.* The requirements of this paragraph shall apply to

cargo pumprooms and enclosed spaces immediately above the bulk cargo tanks of tank vessels carrying Grade A, B, C or D liquid cargo, the construction or conversion of which vessels was started on or after July 1, 1951, but prior to November 19, 1955. There are no special restrictions in regard to the electrical installations in cargo pumprooms and enclosed spaces of tank vessels carrying only Grade E liquid cargo.

(2) *Cable location.* Through runs of electric cable are permitted.

(3) *Equipment.* No electric lighting or power circuit interrupting or power devices shall be installed in pumprooms. Enclosed spaces immediately above the bulk cargo tanks shall contain no electrical circuit interrupting or power devices.

(4) *Lighting.* Lighting shall be effected by means of approved explosion-proof or magazine type lighting fixtures. When the vessel is not gas free no portable lighting equipment shall be used except approved explosion-proof, self-contained, battery-fed lamps.

(h) *General cargo spaces of tank vessels constructed on or after July 1, 1951, but prior to November 19, 1955 and carrying Grade E liquid cargo only.* General cargo spaces, regardless of location, of tank vessels constructed on or after July 1, 1951, but prior to November 19, 1955, and carrying Grade E liquid cargo only, shall have no special restrictions in regard to electrical installations.

(i) *Cargo pumprooms and enclosed spaces of tank vesels constructed on or after November 10, 1936, but prior to July 1, 1955*—(1) *Application.* The requirements of this paragraph shall apply to cargo pumprooms for Grade A, B, C or D liquids and to enclosed spaces required to segregate Grade A, B, C or D liquid cargo tanks from other spaces, all on tank vessels the construction or conversion of which was started on or after November 10, 1936, but prior to July 1, 1951.

(2) *General.* The installation covering the cable, cable fittings and method of making wiring connections, lighting fixtures, and motors shall comply with the requirements of § 111.70–90(d) of Subchapter J (Electrical Engineering) of this chapter.

(3) *Ventilation.* The motor-driven ventilation system for the cargo pump motor when located in the pumproom is to be so interlocked that the pump motor cannot be started prior to a circulation of air. The air ducts are to lead to and from the atmosphere outside the pumproom and are to terminate not less than 3 feet above the deck and not less than 6 feet from any cargo tank vent. (See § 32.60–20.)

§ 32.45–10 Requirements for tank vessels the construction or conversion of which was started prior to November 10, 1936—TB/ALL.

(a) *Application.* The requirements of this section shall apply to all tank vessels the construction or conversion of which was started prior to November 10, 1936.

(b) *General.* The electrical installation shall be maintained in a safe and in a good mechanical condition, and shall comply with the regulations in effect when the vessel was built, or to the requirements of a recognized classification society. Any major change in the electrical installation or any conversion shall comply with the requirements of this subpart applicable to new vessels.

(c) *Pumprooms and enclosed spaces of tank vessels handling Grade A, B, C or D liquid cargo.* The electrical installation in the pumprooms and enclosed spaces immediately adjoining cargo tanks (except in pump enginerooms as provided in § 32.70–20) of tank vessels handling Grade A, B, C or D liquid cargo shall be made to comply with §§ 32.45–1 (b) and (c), 32.45–5 (b) and (g) and §§ 111.55–1, 111.55–15 and 111.60–5 of Subchapter J (Electrical Engineering) all of this chapter, to the extent that the changes are, in the opinion of the Officer in Charge, Marine Inspection, necessary in the interest of safety.

Subpart 32.50—Pumps, Piping, and Hose for Cargo Handling

§ 32.50–1 Cargo pumps for tank vessels constructed on or after November 10, 1936—TB/ALL.

On all tank vessels, the construction or conversion of which is started on or after November 10, 1936, the cargo pumps shall be designed and installed to minimize the danger of sparking. Special care shall be exercised in the design of packing spaces in order to secure ample depth and accessibility of glands. Where cargo pump shafts pierce gastight bulkheads, stuffing boxes with readily accessible gastight glands shall be provided.

§ 32.50–3 Cargo discharge—TB/ALL.

(a) Pumps or other acceptable means shall be used to discharge cargo from gravity type cargo tanks vented at gauge pressures of 4 pounds per square inch or less.

(b) The use of compressed air as the primary means of discharging cargo from such tanks is prohibited.

§ 32.50–5 Cargo pump gauges on tank vessels constructed on or after November 10, 1936—TB/ALL.

(a) [Reserved]

(b) A pressure gage shall be installed for each pump discharge, and it shall be located at a point visible with respect to the pump controls.

[CGFR 65–50, 30 FR 16671, Dec. 30, 1967, as amended by CGD 73–254, 40 FR 40163, Sept. 2, 1975]

§ 32.50–10 Cargo pumps on tank vessels with independent cargo tanks which were constructed prior to November 10, 1936—TB/ALL.

(a) Cargo pumps on tank vessels, the construction or conversion of which was started prior to November 10, 1936, may be located in a hold space containing independent cargo tanks or on deck. If the pump driving unit is of the type permitted in cargo pumprooms, it also may be located in the hold space. If other types of driving units are used, they shall be located on deck or in an engine compartment. If the pump drive shaft passes through decks or bulkheads into a hold space or pumproom, it shall be provided with suitable stuffing boxes at such points.

§ 32.50–15 Cargo piping on tank vessels constructed on or after July 1, 1951—TB/ALL.

(a) On all tank vessels, the construction or conversion of which is started on or after July 1, 1951, the cargo piping shall be:

(1) A fixed cargo piping system shall be installed on a tank vessel carrying Grade A, B, or C cargo. The piping shall be arranged so as to avoid excessive stresses at the joints. For sizes exceeding 2 inches in diameter, flanged, welded, or other approved types of joints shall be employed. Packing material shall be suitable for the cargo carried. Connections at bulkheads shall be made so that the plating does not form part of a flanged joint. Piping may be carried through bunker spaces and deep tanks provided it is run through a pipe tunnel. The tunnel may be omitted where the pipe is extra heavy, all joints are welded, and bends are installed to provide for expansion and contraction.

(2) Cargo piping, where installed in tank vessels carrying Grade D or E cargo only, shall conform with the requirements contained in subparagraph (1) of this paragraph.

(3) Cargo piping shall not pass through spaces containing machinery where sources of vapor ignition are normally present: *Provided,* That, in special cases the Commandant may permit the piping to pass through such spaces if Grade E liquids only are involved.

(b) Valve operating rods in cargo tanks shall be solid, except that tank barges having plug cocks inside the cargo tanks may have operating rods of extra heavy pipe with the annular space between the lubricant tube and the pipe wall sealed with a nonsoluble material to prevent penetration of the cargo. Valve operating rods shall be of ample size, well guided and supported, and attached to the valve stems in a manner so as to prevent the operating rods from working loose. Where the operating rods pass through a deck, gastight stuffing boxes shall be fitted. The leads of operating rods shall be as direct as possible. Valves shall be of suitable design for the intended service.

(c) All cargo loading and discharge hose connections shall be fitted with valves or blind flanges.

§ 32.50–20 Cargo piping for tank vessels constructed between November 10, 1936, and July 1, 1951—TB/ALL.

(a) On tank vessels, the construction or conversion of which is started on or after November 10, 1936, and prior to July 1, 1951, the piping shall be arranged so as to avoid excessive stresses at the joints. For sizes exceeding 2 inches in diameter, flanged, welded, or other approved types of joints shall be employed. Packing material shall be suitable for the cargo carried. Connections at bulkheads shall be made so that the plating does not form part of a flanged joint. Piping may be carried through bunker spaces and deep tanks provided it is run

through a pipe tunnel. The tunnel may be omitted where the pipe is extra heavy, all joints are welded, and bends are installed to provide for expansion and contraction.

(b) Cargo piping shall not pass through spaces containing machinery where sources of vapor ignition are normally present: *Provided,* That in special cases the Commandant may permit the piping to pass through such spaces if Grade E liquids only are involved.

(c) Valve operating rods in the cargo tanks shall be solid and of ample size, well guided and supported, and attached to the valve stems in a manner to guard against their working loose. Where such valve rods pass through the deck, gas tight stuffing boxes shall be fitted. The leads of valve rods shall be as direct as possible. All valves and fittings shall be of material, design, and manufacture for the intended service on the cargo system; either rising or nonrising stem valves may be used.

§ 32.50-25 Cargo pumps and piping on tank vessels constructed prior to November 10, 1936—TB/ALL.

On tank vessels, the construction or conversion of which was started prior to November 10, 1936, cargo pumps and piping which do not fully comply with the regulations in this subchapter shall be made as nearly equal to the requirements for tank vessels constructed between November 10, 1936, and July 1, 1951, as is necessary in the interest of safety. Cargo pipe lines may pass through cargo pump engine compartments provided no cargo valves are located therein.

§ 32.50-30 Cargo hose—TB/ALL.

Cargo hose, when carried on tank vessels, shall be of a grade suitable for oil service, and shall be designed to withstand the pressure of the shutoff head of the cargo pump or pump relief valve setting, less static head, but in no case less than 100 pounds per square inch.

§ 32.50-35 Remote manual shutdown for internal combustion engine driven cargo pump on tank vessels—TB/ALL.

(a) Any tank vessel which is equipped with an internal combustion engine driven cargo pump on the weather deck shall be provided with a minimum of one remote manual shutdown station, conspicuously marked, and located at the midpoint of such vessel, or 100 feet from the engine, whichever is the more practical. The remote quick acting manual shutdown shall be installed on the engine so as to provide a quick and effective means of stopping the engine (such as by cutting off the intake air).

(b) This regulation applies to all installations of this type on tank vessels, but for such installations now on existing tankships at the date of next biennial inspection or October 1, 1963, whichever occurs later.

Subpart 32.52—Bilge Systems

§ 32.52-1 Bilge pumps on tank vessels constructed or converted on or after November 19, 1952—TB/ALL.

The number and arrangement of bilge pumps on each tank vessel shall conform to the requirements of Subchapter F (Marine Engineering) of this chapter, except as hereinafter provided in this subpart.

§ 32.52-5 Bilge piping for pump rooms and adjacent cofferdams on tank vessels constructed or converted on or after November 19, 1952—TB/ALL.

(a) Provisions shall be made for removing drainage from the pumproom bilges and adjacent cofferdams. A separate bilge pump, ejector, or bilge suction from a cargo pump or cargo stripping pump may be provided for this purpose. The bilge pump shall not be located in nor shall the piping pass through spaces containing machinery where sources of vapor ignition are normally present.

(b) Where a bilge suction is provided from a cargo or stripping pump, a stop-check valve shall be fitted in the suction branch, and an additional stop valve shall be fitted also if the bilge suction branch can be subjected to a head of oil from the filling line.

(c) Means shall be provided for controlling the cargo or pump room bilge pumps and their suctions or discharges in order that a flooded pump room may be pumped out. Suitable portable or manually operated pumps may be accepted as complying with this provision, or alternatively, the pump controls shall be arranged so that they are operable from inside the pump room and either from an accessible position outside the pump room, or from the pump room casing above the freeboard deck.

§ 32.52–10 Bilge pumps and piping on tank vessels constructed or converted prior to November 19, 1952—TB/ALL.

(a) On tank vessels, the construction or conversion of which was started prior to November 19, 1952, bilge pumps and piping which do not fully comply with the regulations of this subchapter shall be made as nearly equal to the requirements for tank vessels constructed on or after November 19, 1952, as is necessary in the interest of safety.

(b) Bilge suctions from hold spaces containing independent cargo tanks may be connected to cargo pumps or stripping pumps, provided the installation complies with the requirements of § 32.52–5(b).

Subpart 32.53—Inert Gas System

SOURCE: CGD 74–127, 41 FR 3843, Jan. 26, 1976.

§ 32.53–1 Application—T/ALL.

The provisions in this subpart apply to each tankship of 100,000 or more DWT (metric) and each combination carrier of 50,000 or more DWT (metric) that have a keel laying date on or after January 1. 1975. except if they—

(a) Carry Grade E cargo that is at a temperature that is lower than 5°C (9°F) below its flashpoint; or

(b) Carry only liquefied gas cargo.

§ 32.53–5 Operation—T/ALL.

The master of each tankship to which this subpart applies shall ensure that the inert gas system is operated as necessary to maintain an inert atmosphere in the cargo tanks at the pressure required under § 32.53–30, except when the cargo tanks are gas free.

§ 32.53–10 General—T/ALL.

(a) Each tankship to which this subpart applies must have an inert gas system that meets the requirements of this subpart and is approved in accordance with 46 CFR 50.20.

(b) Each inert gas system must be designed to supply the cargo tanks a gas or a mixture of gases that has an oxygen content of 5% or less by volume.

(c) Each inert gas system must be designed to eliminate the need for fresh air in the cargo tanks during normal operations except during gas freeing.

(d) Each cargo and cargo slop tank must be capable of being purged with inert gas.

(e) Each inert gas system that is designed to purge the tanks with fresh air must have blank flanges for installation on all fresh air inlets when they are not in use.

(f) Each inert gas system must be designed to minimize the risk of ignition from the generation of static electricity.

§ 32.53–15 Approval—T/ALL.

(a) The installer of each inert gas system must submit a description and specifications of the supply and distribution systems, including all control and monitoring devices, to the appropriate Coast Guard technical office in accordance with 46 CFR 50.20 for approval.

(b) Each inert gas system must meet the requirements of 46 CFR Part 56, except—

(1) The 50 p.s.i. minimum design pressure does not apply, but valves, fittings, and vessels such as scrubbers must be designed for the maximum pressure and temperature they may encounter in service; and

(2) The only initial service test the system is required to pass is an initial service leak test.

§ 32.53–20 Inert gas generators—T/ALL.

Systems employing inert gas generators must meet the requirements of 46 CFR 63.05–20 for control of the generator. Plans for each enert gas generator must be submitted for approval in accordance with 46 CFR 63.05–5.

§ 32.53–25 Gas supply—T/ALL.

Each inert gas system must be capable of supplying inert gas at a capacity of 125 percent of the combined maximum rated capacities of all cargo pumps which can be simultaneously operated.

§ 32.53–30 Positive pressure—T/ALL.

Each inert gas system must be designed to enable the operator to maintain a gas pressure of 100 millimeters (4 inches) of water on filled cargo tanks and during loading and unloading of cargo tanks.

§ 32.53–35 Gas scrubber—T/ALL.

If the inert gas production process uses heated gas or introduces contaminants into the system, the system must have a scrubber or other device that reduces solid and sulphur combustion products and cools the inert gas.

§ 32.53-40 Scrubber: cooling water supply—T/ALL.

(a) The cooling water system of each inert gas system that uses a scrubber must furnish an adequate supply of water to each scrubber without interfering with the water supply to the firefighting system.

(b) An alternate water supply must be available to each scrubber.

§ 32.53-45 Blowers—T/ALL.

(a) Each inert gas system must have at least two independent blowers that together are capable of delivering the amount of gas required by § 32.53-25 of this subpart.

(b) Each inert gas system must be designed to prevent the pressure exerted on the tanks from exceeding their maximum design pressure.

§ 32.53-50 Gas distribution lines: non-return devices—T/ALL.

(a) Two non-return devices, one of which is a water seal, must be fitted in the inert gas main.

(b) The water supply system must be designed to ensure that an adequate supply of water to the water seal can be maintained manually or automatically at all times.

§ 32.53-55 Stop valves—T/ALL.

(a) Stop valves or other means of closure such as spectacle flanges must be fitted in each branch pipe at each tank.

(b) Each stop valve or other device must be a type that provides visible indication of whether it is open or closed.

§ 32.53-60 Instrumentation—T/ALL.

(a) Each inert gas system must be equipped with the following instruments with sensors fitted downstream of the blowers:

(1) Oxygen concentration indicator and permanent recorder.

(2) Pressure indicator and permanent recorder.

(3) Temperature indicator.

(b) Each instrument listed in paragraph (a) of this section must operate continuously when inert gas is being supplied to the tanks.

(c) Each inert gas system must have readouts of oxygen concentration, pressure, and temperature provided at the cargo control station and the location of the person in charge of the main propulsion machinery.

§ 32.53-65 Portable instruments—T/ALL.

(a) Each ship that has an inert gas system must have portable instruments for measuring concentrations of oxygen and hydrocarbon vapor in an inert atmosphere.

(b) Each tank must have fittings which allow the use of portable instruments.

§ 32.53-70 Alarms and controls—T/ALL.

(a) Alarms must sound at the location of the controls for the main propulsion machinery.

(b) Each inert gas system must have the following:

(1) An alarm that gives an audible and visual warning when the oxygen content of the inert gas exceeds 8 percent by volume.

(2) An alarm that gives an audible and visual warning when the gas pressure in the inert gas main downstream of all non-return devices is less than 100 millimeters (4 inches) of water.

(3) An alarm that gives an audible and visual warning and a control that automatically shuts off the system's blowers upon loss of normal water supply at the water seal.

(4) An alarm that gives an audible and visual warning and a control that automatically shuts off the system's blowers when the temperature of the inert gas that is being delivered to the cargo tanks is more than 65.6°C (150°F).

(5) An alarm that gives an audible and visual warning and a control that automatically shuts off the system's blowers upon loss of normal cooling water supply to any scrubber.

§ 32.53-75 Gas main: Automatic shut-down valve—T/ALL.

(a) The gas main of each inert gas system must have an automatic shut-down valve that is fitted where the gas main leaves the production plant.

(b) Each shut-down valve must be designed to close automatically upon blower failure.

§ 32.53-80 Tank cleaning—T/ALL.

Each inert gas system must be capable of maintaining an inert atmosphere within tanks that are being mechanically washed.

§ 32.53–85 Instruction manual—T/ALL.

The master of each ship that has an inert gas system must have on board the ship an instruction manual that contains instructions for the safe operation and maintenance of the inert gas system.

Subpart 32.55—Ventilation and Venting

§ 32.55–1 Ventilation of tank vessels constructed on or after July 1, 1951—TB/ALL.

(a) On all tanks vessels, the construction or conversion of which is started on or after July 1, 1951, all enclosed parts of the vessel, other than cargo, fuel and water tanks, cofferdams and void spaces, shall be provided with efficient means of ventilation.

(b) Compartments containing machinery where sources of vapor ignition are normally present shall be ventilated in such a way as to remove vapors from points near the floor level or the bilges. Effective steam or air actuated gas ejectors, blowers or ventilators fitted with heads for natural ventilation, with at least one duct extending to immediately below the floor plates will be approved for this purpose. Machinery spaces below the freeboard deck, in which fuels with flash point of 110° F. or lower are used, shall be equipped with power ventilation. (See § 32.60–20 for other requirements concerning pumprooms.)

§ 32.55–5 Ventilation of tank vessels constructed between November 10, 1936, and July 1, 1951—TB/ALL.

(a) On tank vessels, the construction or conversion of which was started on or after November 10, 1936, and prior to July 1, 1951, all enclosed parts of the vessel, other than cargo, fuel, and water tanks and cofferdams, shall be provided with efficient means of ventilation.

(b) Pumprooms and compartments containing machinery where sources of vapor ignition are normally present shall be ventilated in such a way as to remove vapors from points near the floor level or the bilges. Effective steam or air actuated gas ejectors or blowers or ventilators fitted with heads for natural ventilation, will be approved for this purpose. (See § 32.65–20 for other requirements concerning pumprooms.)

§ 32.55–10 Ventilation of tank vessels contracted prior to November 10, 1936—TB/ALL.

Ventilation of tank vessels, the construction or conversion of which was started prior to November 10, 1936, shall be equal to the requirements of tank vessels constructed before July 1, 1951, where the changes are, in the opinion of the Officer in Charge, Marine Inspection, necessary in the interest of safety.

[CGFR 65–50, 30 F.R. 16671, Dec. 30, 1965, as amended by CGFR 66–33, 31 F.R. 15268, Dec. 6, 1966]

§ 32.55–15 Ventilation for hold spaces—TB/ALL.

Hold spaces containing independent cargo tanks shall be considered to be equivalent to cargo pumprooms and shall be ventilated and safeguarded as such.

§ 32.55–20 Venting of cargo tanks of tankships constructed on or after July 1, 1951—T/ALL.

(a) *Venting required.* (1) On all tankships, the construction or conversion of which is started on or after July 1, 1951, each cargo tank shall be equipped with a vent. The diameter of a vent shall be not less than 2½ inches.

(2) In any case where a venting system is required for a particular grade of liquid, the venting system permitted for a higher grade of liquid may be used instead.

(b) *Grade A liquids.* (1) Cargo tanks in which Grade A liquids are to be transported shall be fitted with a venting system consisting of a branch vent line from each cargo tank connected to a vent header which shall extend to a height above the weather deck equal to at least one-third the beam of the vessel and shall terminate at a comparable distance from any other living or working space, ventilator inlet, or source of ignition. When special conditions will prevent the vent line or header outlets being permanently installed at a height above the deck of one-third the beam of the vessel, then an adjustable system shall be provided which, when extended vertically, shall be capable of reaching a height of one-third the beam of the vessel.

(2) A weather hood may be installed at the vent outlet providing it is of such design as not to direct the flow of vapor below the horizontal.

(3) The branch vent lines shall consist of either:

(i) Pipe with no valves or other hindrances to a free flow of gas; or,

(ii) Piping fitted with a pressure vacuum relief valve, provided means are supplied for relieving all internal pressure on cargo tanks by fitting the valve with a positive means for opening its pressure valve to allow free passage of gases through the branch vent line or by the installation of a by-pass fitted with a manually operated stop valve.

(4) The vent header shall be fitted with a flame arrester or pressure vacuum relief valve. If a pressure vacuum relief valve is used in the header, means shall be provided for relieving all internal pressure on cargo tanks by fitting the valve with a positive means for opening its pressure valve to allow free passage of gases through the header or by the installation of a by-pass fitted with a manually operated stop valve. A suitable means of relieving pressure shall be fitted in the header in order to prevent excess pressure being built up in the tanks, in the event of overfilling of the latter. The vent header system shall be provided with suitable connections for flushing and draining. The vent header system shall be of sufficient capacity as to be able to carry off all displaced air and vapors during loading of the cargo tanks without opening of ullage plates, cargo hatches, etc. See § 32.20-20 for liquid level gaging requirements.

(c) *Grade B or C liquids.* Cargo tanks in which Grade B or C liquids are to be transported shall be fitted with either individual pressure-vacuum relief valves which shall extend to a reasonable height above the weather deck or shall be fitted with a venting system consisting of branch vent lines connected to a vent header which shall extend to a reasonable height above the weather deck and be fitted with a flame arrester or a pressure-vacuum relief valve. The vent header system, if fitted, shall be provided with suitable connections for flushing and draining, and if desired, stop valves may be placed in the individual branch vent lines provided that each stop valve is bypassed by a pressure-vacuum relief valve.

(d) *Grade D or E liquids.* Cargo tanks in which Grade D or E liquids only are to be transported shall be fitted with gooseneck vents and flame screens.

§ 32.55-25 Venting of cargo tanks of tank barges constructed on or after July 1, 1951—B/ALL.

(a) *Venting required.* (1) On all tank barges, subject to the provisions of this subchapter the construction or conversion of which is started on or after July 1, 1951, each cargo tank shall be equipped with a vent. The diameter of a vent shall be not less than 2½ inches.

(b) *Grade A, B, or C liquids.* Cargo tanks in which Grade A, B, or C liquids are to be transported shall be fitted with either individual pressure-vacuum relief valves which shall extend to a reasonable height above the weather deck or shall be fitted with a venting system consisting of branch vent lines connected to a vent header which shall extend to a reasonable height above the weather deck and be fitted with a pressure-vacuum relief valve. The vent header system, if fitted, shall be provided with suitable connections for flushing and draining, and if desired, stop valves may be placed in the individual branch vent lines: *Provided,* That each such stop valve is bypassed by a pressure-vacuum relief valve.

(c) *Grade D or E liquids.* Cargo tanks in which Grade D or E liquids only are to be transported shall be fitted with gooseneck vents and flame screens.

[CGFR 65-50, 30 F.R. 16671, Dec. 30, 1965, as amended by CGFR 70-10, 35 F.R. 3709, Feb. 25, 1970]

§ 32.55-30 Venting of cargo tanks of tank vessels constructed between November 10, 1936, and July 1, 1951—TB/ALL.

(a) *Venting required.* On all tank vessels, the construction or alteration of which is started on or after November 10, 1936, and prior to July 1, 1951, each cargo tank shall be equipped with a vent. The details of the venting system shall meet the requirements of this section, or alternatively, the requirements of either § 32.55-20 or § 32.55-25, as applicable, shall be met.

(b) *Grade A liquids.* (1) Cargo tanks in which Grade A liquids are to be transported shall be fitted with a venting system consisting of branch vent line from each cargo tank connected to a vent header which shall extend to a reasonable height above the weather deck and be fitted with a flame arrester or pressure-vacuum relief valve. Each branch

vent line may be provided with a manually operated control valve, provided it is bypassed with a pressure-vacuum relief valve or each cargo tank to which such a branch vent line is connected is fitted with an independent pressure-vacuum relief valve. The vent header system shall be provided with suitable connections for flushing and draining.

(2) In barges with independent tanks carrying Grade A liquids, separate discharge pipes may be fitted to each pressure-vacuum relief valve, or the pressure-vacuum relief valve may be elevated, so that in either case the discharge from such valve will not be less than 7 feet above the deck where practicable.

(c) *Grade B or C liquids.* Cargo tanks in which Grade B or C liquids are to be transported shall be fitted with individual pressure-vacuum relief valves or shall be fitted with a venting system consisting of branch vent lines connected to a vent header which shall extend to a reasonable height above the weather deck and be fitted with a flame arrester or a pressure-vacuum relief valve.

(d) *Grade D or E liquids.* Cargo tanks in which Grade D or E liquids only are to be transported shall be fitted with gooseneck vents and flame screens unless such tanks are vented by pressure-vacuum relief valves or a venting system of branch vent lines and a vent header.

§ 32.55–35 Venting of cargo tanks on tank vessels constructed prior to November 10, 1936—TB/ALL.

The venting of cargo tanks of tank vessels, the construction or alteration of which was started prior to November 10, 1936, shall be made to equal the requirements of tank vessels constructed before July 1, 1951, where the changes are, in the opinion of the Officer in Charge, Marine Inspection, necessary in the interests of safety: *Provided,* That on such vessels carrying Grade A cargo the requirements in § 32.55–30(b) shall be met.

§ 32.55–40 [Reserved]

§ 32.55–45 Venting of cofferdams and void spaces of tank vessels constructed on or after November 10, 1936—TB/ALL.

(a) Except as provided in paragraph (b) of this section, on all tank vessels, the construction or conversion of which was started on or after November 10, 1936, cofferdams and void spaces shall be provided with gooseneck vents fitted with a flame screen or pressure-vacuum relief valves. The diameter of a vent shall be not less than 2½ inches.

(b) On unmanned tank barges not fitted with fixed bilge systems in the cofferdams and void spaces, vents for cofferdams and void spaces will not be required.

§ 32.55–50 Ventilation of tankships that have a keel laying date on or after January 1, 1975—T/ALL.

Each tankship that has a keel laying date on or after January 1, 1975, must have deckhouse and superstructure ventilation inlets and outlets and other openings to the exterior arranged to minimize the admission of flammable gas to enclosed spaces that contain a source of ignition.

[CGD 74–127, 41 FR 3844, Jan. 26, 1976]

Subpart 32.56—Structural Fire Protection for Tank Ships With a Keel Laying Date on or After January 1, 1975

SOURCE: CGD 74–127, 41 FR 3844, Jan. 26, 1976.

§ 32.56–1 Application—T/ALL.

This subpart applies to all tankships that have a keel laying date on or after January 1, 1975.

§ 32.56–5 General—T/ALL.

(a) Except as provided in paragraphs (c) and (d) of this section, each Category A machinery space must be aft of the cargo area and pumprooms.

(b) Except as provided in paragraphs (c), (d), and (e) of this section, each accommodation space, service space except isolated storage spaces, and control space and each main cargo control station must be aft of—

(1) The cargo area;

(2) All cargo pumprooms; and

(3) All cofferdams that isolate the cargo area from Category A machinery spaces.

(c) Except as provided in paragraph (e) of this section, any pumproom may be recessed below accommodation, service, and control spaces and recessed into any Category A machinery space if the distance between the deckhead of the recess and the underside of the accommodation, service, or control space is at least equal to the height of the recess.

(d) Accommodation, service, control and certain machinery spaces, such as spaces for bow thrusters, windlass, and

emergency fire pumps, may be located forward of the cargo area and pump rooms if it is demonstrated to the Commandant that the overall degree of safety of the vessel is improved and that the degree of fire and life safety for these spaces is not less than the degree of fire and life safety for similar spaces located aft.

(e) On liquefied gas carriers—

(1) Main cargo control stations may be located in the cargo area;

(2) Accommodation, service, and control spaces may be located over cofferdams that isolate cargo tanks other than integral tanks from Category A machinery spaces;

(3) Pumprooms may not be recessed into any space below deck.

§ 32.56–10 Navigation positions—T/ALL.

(a) No navigation position may be above the cargo area unless it is approved by the Commandant as necessary for the safe operation of the vessel.

(b) Each navigation position that is above the cargo area must be separated from the deck by an unenclosed space that extends at least 2 meters (6.6 feet) from the deck to the navigation position.

(c) Openings to navigation positions above cargo areas, except air locks, must be at least 2.4 meters (7.9 feet) above the deck.

§ 32.56–15 Deck spills—T/ALL.

A coaming or other barrier at least .3 meters (1 foot) higher than adjacent spill containment barrier must be provided to prevent cargo spills from flowing aft of the housefront.

§ 32.56–20 Insulation of exterior boundaries: Superstructures and deckhouses—T/ALL.

The following exterior boundaries of superstructures and deckhouses that contain accommodation, service, and control spaces, except wheelhouses, must be insulated to "A–60" Class:

(a) The exterior boundaries that face the cargo area.

(b) The portion of the exterior bulkheads and decks within 3 meters (10 feet) of these boundaries.

§ 32.56–21 Openings in exterior boundaries: Accommodation, service, and control spaces—T/ALL.

The following exterior boundaries of accommodation, service, and control spaces, except wheelhouses, must have no openings, and portlights must be of a fixed type with easily operable steel covers on the inside:

(a) The exterior boundaries that face the cargo area.

(b) The portion of the exterior boundaries within 3 meters (10 feet) or the length of the vessel divided by 25, whichever is greater, except that the distance need not exceed 5 meters (16.4 feet), of these boundaries.

§ 32.56–22 Openings in and insulation of boundaries: Other spaces—T/ALL.

If openings are fitted into the following exterior boundaries of any space other than an accommodation, service, or control space, the interior of the space must be insulated to "A–60" Class and the space must not provide access to any accommodation, service, or control space:

(a) The exterior boundaries that face the cargo area.

(b) The portion of the exterior boundaries within 3 meters (10 feet) or the length of the vessel divided by 25, whichever is greater, except that the distance need not exceed 5 meters (16.4 feet), of these boundaries.

§ 32.56–25 Category A machinery spaces: Windows and port lights—T/ALL.

(a) Except as provided in paragraph (b) of this section and 46 CFR 111.85–10, boundaries of Category A machinery spaces and boundaries of cargo pumprooms must not be pierced for windows or portlights.

(b) Skylights that can be closed from outside the spaces they serve may be fitted in boundaries of Category A machinery spaces.

§ 32.56–30 Category A machinery spaces: Bulkheads and decks—T/ALL.

(a) Bulkheads and decks that separate Category A machinery spaces from cargo pumprooms must be "A" Class construction.

(b) Bulkheads and decks that separate Category A machinery spaces or cargo pumprooms, including the pumproom entrance, from accommodation, service, or control spaces must be "A–60" Class construction.

§ 32.56–35 Doors—T/ALL.

(a) Casing doors in Category A machinery spaces and all elevator doors

must be self-closing and must meet the requirements of 46 CFR 72.05–25(b).

(b) If a means of holding a door open is used, it must be a magnetic holdback or equivalent device that is operated from the bridge or other suitable remote control position.

§ 32.56–40 Category A machinery spaces: Insulation—T/ALL.

Structural insulation within Category A machinery spaces must have a barrier such as metal foil, sheet metal, cementitious coating, or other vapor barrier so that the surface of that insulation is impervious to oil and oil vapors.

[CGD 74–127, 41 FR 3844, Jan. 26, 1976, as amended by CGD 74–127, 41 FR 4826, Feb. 2, 1976]

§ 32.56–45 Draft stops—T/ALL.

(a) Where ceilings or linings are fitted in accommodation, service, or control spaces, "B" Class bulkheads, except those that form passageways, may stop at the ceiling or lining if draft stops of "B" Class construction are fitted between the ceiling or lining and the deck or shell at intervals of 14 meters (45 feet) or less.

(b) Spaces behind the linings of stairways and other trunks must have draft stops at each deck.

§ 32.56–50 Combustible veneers—T/ALL.

(a) Except as provided in paragraph (b) of this section combustible veneers on bulkheads, linings, and ceilings within accommodation, service, or control spaces must be 2 millimeters (.079 inches) or less in thickness.

(b) Veneers on bulkheads, linings, and ceilings in concealed spaces, corridors, stairway enclosures, or control spaces must be an approved interior finish material or a reasonable number of coats of paint.

§ 32.56–55 Control spaces—T/ALL.

Bulkheads and decks that separate control spaces from adjacent spaces must be "A" Class construction and insulated against fire. 46 CFR Table 72.05–10(e) of the Passenger Vessel Regulations may be used as a guide.

§ 32.56–60 Ventilation ducts—T/ALL.

(a) Each duct for ventilation of Category A machinery spaces that passes through accommodation, service, or control spaces must be—

(1) Constructed of steel and insulated to "A–60" Class; or

(2) constructed of steel, fitted with an automatic fire damper at each boundary where it enters and leaves the Category A machinery space, and insulated to "A–60" Class for a distance of 5 meters (16.4 feet) beyond each machinery space boundary.

(b) Each duct for ventilation of accommodation, service, and control spaces that passes through Category A machinery spaces must be constructed of steel and be fitted with an automatic fire damper at each Category A machinery space boundary.

Subpart 32.57—Structural Fire Protection for Tank Vessels Contracted for On or After January 1, 1963

§ 32.57–1 Application—TB/ALL.

(a) The provisions of this subpart shall apply to all tank vessels contracted for on or after January 1, 1963.

§ 32.57–5 Definitions—TB/ALL.

(a) *Standard fire test.* A "standard fire test" is one which develops in the test furnace a series of time temperature relationships as follows:

5 minutes—1,000° F.
10 minutes—1,300° F.
30 minutes—1,550° F.
60 minutes—1,700° F.

(b) *"A" Class divisions.* "A" Class divisions such as bulkheads and decks, means divisions that are composed of steel or an equivalent metal, suitably stiffened, and made intact with the main structure of the vessel, including the shell, structural bulkheads, or decks. They are constructed so that, if subjected to the standard fire test, they are capable of preventing the passage of flame and smoke for one hour. In addition, they are insulated with approved structural insulation, bulkhead panels, or deck coverings so that the average temperature on the unexposed side does not rise more than 139° C (250°F) above the original temperature, nor does the temperature at any one point, including any joint, rise more than 181° C (325°F) above the original temperature, within the time listed below:

Class	A–60	60 minutes
Class	A–30	30 minutes
Class	A–15	15 minutes
Class	A–0	0 minutes with no insulation requirement

(c) *"B" Class bulkheads.* Bulkheads of the "B" Class shall be constructed

with approved incombustible materials and made intact from deck to deck and to shell or other boundaries. They shall be so constructed that, if subjected to the standard fire test, they would be capable of preventing the passage of flame for one half hour.

(d) *"C" Class divisions.* Bulkheads or decks of the "C" Class shall be constructed of approved incombustible materials, but need meet no requirements relative to the passage of flame.

(e) *Steel.* Where the term "steel or other equivalent metal" is used in this subpart, it is intended to require a material which, by itself or due to insulation provided, has structural and integrity qualities equivalent to steel at the end of the applicable fire exposure.

(f) *Approved material.* Where in this subpart approved materials are required, they refer to materials approved under the applicable subparts of Subchapter Q (Specifications) of this chapter, as follows:

Deck Coverings	164.006
Structural Insulations	164.007
Bulkhead Panels	164.008
Incombustible Materials	164.009
Interior Finishes	164.012

(g) *Stairtower.* A stairtower is a stairway which penetrates more than a single deck within the same enclosure.

[CGFR 65-50, 30 F.R. 16671, Dec. 30, 1965, as amended by CGFR 67-90, 33 F.R. 1015, Jan. 26, 1968; CGD 74-127, 41 FR 3845, Jan. 26, 1976; CGD 75-032, 41 FR 17910, Apr. 29, 1976]

§ 32.57-10 Construction—TB/ALL.

(a) The hull, superstructure, structural bulkheads, decks, and deckhouses shall be constructed of steel. Alternately, the Commandant may permit the use of other suitable material in special cases, having in mind the risk of fire.

(b) Bulkheads of galleys, paint and lamp lockers, and emergency generator rooms shall be of "A" Class construction.

(c) The boundary bulkheads and decks separating the accommodations and control stations from cargo, and machinery spaces and from galleys, main pantries and storerooms other than small service lockers shall be of "A" Class Construction.

(d) The following conditions apply within accommodation, service, and control spaces:

(1) Corridor bulkheads in accommodation areas shall be of "A" or "B" Class intact from deck to deck Stateroom doors in such bulkheads may have a louver in the lower half.

(2) Stairtowers, elevator, dumbwaiter, and other trunks shall be of "A" Class construction.

(3) Bulkheads not already specified to be of "A" or "B" Class construction may be of "A", "B", or "C" Class Construction.

(4) The integrity of any deck in way of a stairway opening, other than a stairtower, shall be maintained by means of "A" or "B" Class bulkheads and doors at one level. The integrity of a stairtower shall be maintained by "A" Class doors at every level. The doors shall be of the self-closing type. Such doors shall be fitted with a suitable kickout panel in the lower half. Holdback hooks, or other means of permanently holding the door open will not be permitted. However, magnetic holdbacks operated from the bridge or from other suitable remote control positions are acceptable.

(5) Interior stairs, including stringers and treads shall be of steel or other suitable material having in mind the risk of fire. This is not intended to preclude the use of other material for nosing, walking surfaces, etc., over the steel.

(6) Except for washrooms and toilet spaces, deck coverings within accommodation spaces shall be of an approved type. However, overlays for leveling or finishing purposes which do not meet the requirements for an approved deck covering may be used in thicknesses not exceeding 3/8 of an inch.

(7) Except as provided in paragraph (d)(7a) of this section, ceilings, linings, and insulation, including pipe and duct laggings, must be made of approved incombustible material.

(7-a) Combustible insulations and vapor barriers that have a maximum extent of burning of 122 millimeters (5 inches) or less when tested in accordance with American Society for Testing and Materials (ASTM) Specification D-1692, "Rate of Burning or Extent of Burning of Cellular Plastics Using a Supported Specimen by a Horizontal Screen", may be used within refrigerated compartments.

(8) Any sheathing, furring or holding pieces incidental to the securing of any bulkhead, ceiling, lining, or insulation shall be of approved incombustible materials.

(9) Bulkheads, linings and ceilings may have a combustible veneer within a room not to exceed 2 millimeters (.079

inch) in thickness. However, combustible veneers, trim, decorations, etc., shall not be used in corridors or hidden spaces. This is not intended to preclude the use of an approved interior finish or a reasonable number of coats of paint.

(e) Wood hatch covers may be used between cargo spaces or between stores spaces. Hatch covers in other locations shall be of steel or equivalent metal construction. Tonnage openings shall be closed by means of steel plates or equivalent metal construction.

(f) Nitrocellulose or other highly flammable or noxious fume-producing paints or lacquers shall not be used.

[CGFR 65-50, 30 F.R. 16671, Dec. 30, 1965, as amended by CGFR 66-33, 31 F.R. 15268, Dec. 6, 1966; CGFR 67-90, 33 F.R. 1015, Jan. 26, 1968; CGD 74-127, 41 FR 3845, Jan. 26, 1976]

Subpart 32.60—Hull Requirements for Tank Vessels Constructed On or After July 1, 1951

§ 32.60-1 Scantlings, material, and workmanship—TB/ALL.

(a) All tank vessels, the construction or conversion of which is started on or after July 1, 1951, shall conform to the requirements in this subpart in construction of hulls. The hull and deckhouses shall be of steel or iron construction except that the pilothouse and decks over quarters may be constructed of wood. Scantlings, material, and workmanship, subdivision of cargo spaces, fitting of cofferdams, and testing of tanks shall be at least equivalent to the requirements of the American Bureau of Shipping or other recognized classification society.

(b) See Subpart 32.57 for structural fire protection requirements for tank vessels contracted for on or after January 1, 1963.

§ 32.60-5 Subdivision of cargo space—TB/ALL.

The cargo space shall be divided into tight compartments as necessary to avoid excessive stresses and to provide stability.

§ 32.60-10 Segregation of cargo; Grade A, B, C, or D—TB/ALL.

(a) *General.* The galleys, living quarters, navigation spaces, general cargo spaces, boiler rooms, and enclosed spaces where sources of vapor ignition are normally present, shall be segregated from cargo tanks by cofferdams or pump rooms or tanks, either empty or used to carry liquid having a flashpoint of 150° F. or above, or deck spaces enclosed or open.

(b) *Cargo tank spaces.* Cargo tank spaces shall extend to the main deck, with hatches and vents located on the weather deck. Liquids having a flash point of not less than 150° F. may be carried in the bulk tanks located beyond the segregating cofferdams and/or pump rooms.

(c) *Enclosed spaces.* (1) Cargo and vent piping passing through enclosed spaces immediately above the bulk cargo tanks shall be continuous except that flanged joints connecting pipe sections will be permitted.

(2) No openings to cargo tank shall be permitted other than stuffing boxes through which valve control rods or permanently installed gage tapes extend and openings for use of tank cleaning machines. Openings for tank cleaning machines, when not in use, shall be kept closed by means of gastight bolted plates and when in use shall be made essentially gas and watertight by covers through which hose or pipe to the tank cleaning machines extend.

(3) The overhead in way of quarters shall be gastight.

(d) *Stowage spaces.* The spaces described in paragraph (c) of this section may be used for stowage purposes and for general cargo provided that adequate ventilation is furnished.

(e) *Openings.* (1) Except as provided in paragraph (c) of this section, there shall be no manholes or other openings from cargo tanks to any other enclosed spaces. An exception may be made to allow direct access from cargo tanks to innerbottoms through gas tight bolted manholes, provided:

(i) The innerbottom tanks are voids or ballast tanks only, and

(ii) The innerbottom tanks are protected from sources of ignition similar to the cargo tanks, and any bilge or ballast pumping system serving the innerbottom tanks are treated like cargo pumping systems.

(2) Any vents, sounding tubes, and similar piping passing through such tanks shall be run in a suitable trunk; or such piping shall have a wall thickness equal to or greater than the innerbottom plating, but not less than schedule 80, and shall be welded continuously on both sides of the innerbottom plating.

[CGFR 65-50, 30 F.R. 16671, Dec. 30, 1965, as amended by CGFR 69-72, 34 F.R. 17481 Oct. 29, 1969]

§ 32.60–15 Segregation of cargo; Grade E—TB/ALL.

(a) *General.* The galleys, living quarters, navigation spaces, general cargo spaces, boilerrooms, and enclosed spaces containing machinery, where sources of vapor ignition are normally present, shall be segregated from the cargo tanks by tight bulkheads and intervening spaces are not required.

(b) *Cargo tank spaces.* Cargo tank spaces can be terminated at any deck with hatches on the same deck, but the vent lines shall be extended to the weather deck. Butterworth openings and extension rods may be located on the tank top.

§ 32.60–20 Pumprooms on tank vessels carrying Grade A, B, C, D and/or E liquid cargo—TB/ALL.

(a) *Cargo pumps.* In tank vessels carrying Grade A, B, C, or D liquid cargo, cargo pumps shall be isolated from source of vapor ignition by gastight bulkheads. A gastight bulkhead between the pumproom and the pump engine room may be pierced for drive shaft and pump engine control rods provided such openings are fitted with stuffing boxes or other approved gland arrangement. A steam driven pump shall not be considered a source of vapor ignition provided the steam temperature does not exceed 500° F.

(b) *Ventilation for pumprooms on tank vessels the construction or conversion of which is started between July 1, 1951, and January 1, 1963.* (1) Pumprooms of all tank vessels, the construction or conversion of which is started between July 1, 1951, and January 1, 1963, shall be ventilated in such a way as to remove vapors from points near the floor level or bilges. Pumprooms on tankships handling Grades A, B, or C liquid cargo, with machinery located below the freeboard deck, shall be equipped with power ventilation. Pumprooms equipped with power ventilation shall have the ventilation outlets terminate more than six feet from any opening to the interior part of the vessel which normally contains sources of vapor ignition.

(2) For all tank vessels, the construction or conversion of which is started between October 1, 1959, and January 1, 1963, the power ventilation shall not produce a source of vapor ignition in either the pumproom or the ventilation systems associated with the pumproom. The capacity of power ventilation units shall be sufficient to effect a complete change of air in not more than 3 minutes, based upon the volume of the pumproom and associated trunks up to the deck at which access from the weather is provided.

(c) *Ventilation for pumprooms on tank vessels the construction or conversion of which is started on or after January 1, 1963.* (1) For all tank vessels, the construction or conversion of which is started on or after January 1, 1963, the cargo pumprooms shall be fitted in accordance with paragraphs (a) and (d) of this section. Cargo pumprooms on these vessels shall be ventilated in such a way as to remove vapors from points near the floor level or bilges. Cargo pumprooms on tank vessels handling Grade A, B, or C liquid cargo, shall be equipped with power ventilation of the exhaust type having capacity sufficient to effect a complete change of air in not more than 3 minutes based upon the volume of the pumproom and associated trunks up to the deck at which access from the weather is provided.

(2) The power ventilation units shall not produce a source of vapor ignition in either the pumproom or the ventilation systems associated with the pumproom. Inlets to exhaust ducts shall be provided and located near the floor level at points where concentrations of vapors may be expected. Ventilation from the weather deck shall be provided. Power supply ventilation may be fitted in lieu of natural ventilation, but when fitted shall be arranged to avoid turbulence in the cargo pumproom. Cargo pumprooms equipped with power ventilation shall have the ventilation outlets terminate more than 6 feet from any opening to the interior part of the vessel which normally contains sources of vapor ignition, and shall be so located as to minimize the possibility of recirculating contaminated air through the pumproom.

(3) Cargo pumprooms handling Grade D and/or E liquid cargo only shall be fitted with at least two ducts extended to the weather deck, one of which shall be extended to a point near the floor level. This does not preclude installation of power ventilation, if desired.

(4) The ventilation required in this paragraph shall be sufficient to properly ventilate the pumproom with the access openings closed.

(d) *Access.* The access to a cargo pumproom in a tank vessel carrying Grade A, B, C, or D liquid cargo shall be from the open deck.

[CGFR 65–50, 30 F.R. 16671, Dec. 30, 1965, as amended by CGFR 70–143, 35 F.R. 19905, Dec. 30, 1970]

§ 32.60–25 Living quarters—TB/ALL.

(a) For living quarters the partitions and sheathing shall be of an approved fire resistive construction. The specification for incombustible materials is in Subchapter Q (Specifications) of this chapter.

(b) See Subpart 32.57 for structural fire protection for tank vessels contracted for on or after January 1, 1963.

§ 32.60–30 Tank vessels with independent tanks—TB/ALL.

(a) Independent cargo tanks may be located in hold spaces or in other cargo tanks; however, a working space of at least 15 inches shall be maintained around each independent tank, or else provisions shall be made for moving such tanks to furnish such working space, except that less than 15 inches around such tanks may be permitted if in the judgment of the Officer in Charge, Marine Inspection, having jurisdiction, a satisfactory inspection of the cargo tanks and hull structure can be made.

(b) When an independent cargo tank is located in an enclosed space other than a cargo tank, such enclosed space shall be considered as equivalent to a pumproom and shall be safeguarded as such as required by this subpart.

(c) Cargo tanks independent of the hull structure shall be supported in saddles or on foundations of steel or other suitable material and securely attached in place to preclude the cargo from being damaged or shifting as a result of collision. The arrangement shall be such as to permit longitudinal and circumferential, or athwartship and vertical, expansion of the cargo tanks. Each tank shall be supported so as to prevent the concentration of excessive loads on the supporting portion of the shell.

§ 32.60–35 Tank vessels carrying Grade A liquid cargo—TB/ALL.

(a) Grade A liquids having a Reid vapor pressure in excess of 25 pounds per square inch shall be transported in cargo tanks which are independent of the hull.

(b) Barges carrying Grade A liquids having a Reid vapor pressure in excess of 25 pounds per square inch shall be of a Type III barge hull as defined in § 32.63–5(b)(3).

[CGFR 70–10, 35 F.R. 3709, Feb. 25, 1970]

§ 32.60–40 Construction and testing of cargo tanks and bulkheads—TB/ALL.

(a) All cargo tanks vented at gage pressure of 4 pounds per square inch or less shall be constructed and tested as required by standards established by the American Bureau of Shipping or other recognized classification society. The design of cargo tanks integral with the hull and vented at a gage pressure exceeding 4 pounds per square inch but not exceeding 10 pounds per square inch gage pressure will be given special consideration by the Commandant.

(b) Cargo tanks vented at a gage pressure exceeding 10 pounds per square inch are considered to be pressure vessels and shall be of cylindrical or similar design and shall meet the requirements of Subchapter F (Marine Engineering) of this chapter.

[CGFR 65–50, 30 F.R. 16671, Dec. 30, 1965, as amended by CGFR 68–82, 33 F.R. 18805, Dec. 18, 1968]

§ 32.60–45 Segregation of spaces containing the emergency source of electric power—TB/ALL.

(a) The provisions of this section shall apply to all vessels contracted for on or after October 1, 1958.

(b) When a compartment containing the emergency source of electric power, or vital components thereof, adjoins a space containing either the ship's service generators or machinery necessary for the operation of the ship's service generators, all common bulkheads and/or decks shall be protected by approved "structural insulation" or other approved material. This protection shall be such as to be capable of preventing an excessive temperature rise in the space containing the emergency source of electric power, or vital components thereof, for a period of at least one hour in the event of fire in the adjoining space. Bulkheads or decks meeting Class A–60 requirements, as defined by § 72.05–10 of Subchapter H (Passenger Vessels) of this chapter, will be considered as meeting the requirements of this paragraph

Subpart 32.63—Hull and Cargo Tank Requirements for Tank Barges Constructed or Converted On or After July 1, 1964, and Carrying Certain Dangerous Bulk Cargoes

§ 32.63–1 Application—B/ALL.

(a) The requirements of this subpart shall apply to all tank barges, the construction or conversion of which is started on or after July 1, 1964, and carrying those cargoes listed in Table 30.25–1 which are defined as:

(1) Flammable liquids having a Reid vapor pressure in excess of 25 pounds per square inch, absolute, in independent tanks (Part 32).

(2) Liquefied flammable gases (Part 38 of this subchapter).

[CGFR 70–10, 35 F.R. 3709, Feb. 25, 1970]

§ 32.63–5 Barge hull classifications—B/ALL.

(a) Each barge subject to the provision of this subpart shall be assigned a hull type number. The Commandant will designate the barge hull types to be used for carrying cargoes in order to insure that the vessel is designed consistent with the degree and nature of the hazard of the commodity carried.

(b) For this purpose the barge hull types shall be as follows:

(1) *Type I barge hull.* Barge hulls classed as Type I are those designed to carry products which require the maximum preventive measures to preclude the uncontrolled release of the cargo to the waterways and/or atmosphere.

(2) *Type II barge hull.* Barge hulls classed as Type II are those designed to carry products which require substantial preventive measures to preclude uncontrolled release to the atmosphere, but whose uncontrolled release to the waterways does not constitute a longlasting public or operating personnel hazard, though local and temporary pollution may occur.

(3) *Type III barge hull.* Barge hulls classed as Type III are those designed to carry products of sufficient hazard to require a moderate degree of control.

§ 32.63–8 Alternative arrangements—B/ALL.

(a) Alternative arrangements, differing from those specifically required by this subpart, may be considered and approved by the Commandant, if it is demonstrated to his satisfaction that a degree of safety is obtained which is consistent with the intent of this subpart.

§ 32.63–10 Rakes and coamings—B/ALL.

(a) Each barge hull shall be constructed with a suitable bow form (length, shape, and height of headlog) to protect against diving at the maximum speed at which the barge is designed to be towed. In any integrated tow, only the lead barge need comply with this requirement. In any case, the operator of the towing vessel shall be guided by appropriate speed limitations.

(b) All open hopper type barge hulls shall be provided with coamings around the hopper space and, additionally, a 36-inch minimum height plowshare breakwater on the forward rake. Coamings shall have a minimum height of 36 inches forward graduated to a minimum height of 24 inches at midlength and 18 inches thereafter.

§ 32.63–15 Subdivision and stability—B/ALL.

(a) *General.* In addition to complying with the requirements of § 31.10–30 of this subchapter as applicable, Types I and II barge hulls shall comply with the applicable provisions of this section.

(b) *Types I and II barge hulls.* (1) Types I and II barge hulls shall be constructed with a complete watertight deck, or if of "open hopper type", of such construction that positive buoyancy and stability will be maintained when the barge is fully loaded and the hopper space is flooded to the height of the main deck. Credit may be given for the buoyancy, if any, of the immersed portion of the full cargo tanks when an effective arrangement for securing the tanks is provided.

(2) (i) Type I barge hulls shall retain positive buoyancy and stability after holing the bottom or side shell plating anywhere on its girth, including the intersection of a transverse and a longitudinal watertight bulkhead.

(ii) Type I box barge hulls, specifically designed for operation in an integrated tow, shall retain positive buoyancy and stability after holing the bottom shell plating anywhere on its girth, except in way of a transverse watertight bulkhead, or after holing the side shell plating in way of a transverse watertight bulkhead.

(3) Type II barge hulls shall retain positive buoyancy and stability after holing the bottom or side shell plating anywhere on its girth except in way of a transverse watertight bulkhead.

§ 32.63-20 Hull structure—B/ALL.

(a) *General.* In addition to complying with the requirements of § 32.60-1, as applicable, barge hulls of Types I and II shall comply with the provisions of this section.

(b) *Types I and II barge hull.* Under an assumed grounding condition such that the forward rake bulkhead rests upon a pinnacle at the water surface, the maximum hull bending stress shall not exceed the following limits:

(1) Independent tanks may be installed in such a manner that they do not contribute to the strength and stiffness of the barge. In such case, the hull stress shall not exceed either 50 percent of the minimum ultimate tensile strength of the material or 70 percent of the yield strength when specified, whichever is greater.

(2) The Commandant may consider a reduction in hull stress when independent tanks are installed in such a manner as to contribute to the strength and stiffness of the barge and this is accounted for in determining the effective section modulus of the barge. In such case, the hull stress shall not exceed the percentage stress values prescribed in subparagraph (1) of this paragraph multiplied by the quantity $\left(1.5-\frac{SWT}{UTS}\right)$, where SWT is the stress calculated without including the effect of the tanks, and UTS is the minimum ultimate tensile strength of the material. The value SWT, however, shall in no case be more than 75 percent of UTS.

§ 32.63-25 Cargo tanks and supports—B/ALL.

(a) *General.* Saddles and hold-down securing straps for independent cargo tanks shall be designed to prevent tank failure due to loads induced in the saddles or straps by barge deflection.

(b) *Collision protection.* (1) All independent cargo tanks installed on Type I and Type II barge hulls shall be protected with suitable collision chocks or collision straps to withstand a longitudinal collision load of one and one-half times the weight of the tank and cargo. All other independent cargo tanks shall be provided with suitable collision chocks or collision straps to withstand a longitudinal collision load equal to the weight of the tank and cargo.

(2) All cargo tanks shall be so located as to reduce the likelihood of their being damaged in the event of collision. This protection shall be obtained by locating the cargo tanks not less than 4 feet from the side shell and box-end for Type I hulls and 3 feet for Type II barge hulls, and not less than 25 feet from the headlog at the bow for both types.

(c) *Cargo tank design*—(1) *Types I and II barge hulls.* (i) In addition to requirements provided for in applicable regulations for a specific commodity, cargoes subject to the provisions of this subpart shall be transported in cargo tanks meeting the requirements of this paragraph. Pressure vessel-type cargo tanks shall have sufficient additional strength so as to limit the maximum combined tank stress, including saddle horn and bending stresses, to 1.5 times the maximum allowable hoop stress in still water, and to the yield strength of the tank material or 70 percent of the minimum ultimate tensile strength of the tank material, if less, in the grounded condition as required by § 32.63-20(b).

(ii) Gravity type cargo tanks shall have sufficient additional strength to limit the maximum combined tank stress, including saddle horn and bending stresses, to the yield strength of the tank material or 70 percent of the minimum ultimate tensile strength of the tank material, if less, in the grounded condition as required by § 32.63-20(b).

(2) *Type III barge hulls.* In addition to the requirements of this paragraph, pressure vessel-type cargo tanks shall have sufficient additional strength so as to limit the maximum combined stress, including saddle horn and bending stresses, to 1.5 times the maximum allowable hoop stress.

Subpart 32.65—Hull Requirements for Tank Vessels Constructed On or After November 10, 1936, and Prior to July 1, 1951

§ 32.65-1 Application—TB/ALL.

The requirements in this subpart apply to all tank vessels, the construction or conversion of which was started on or after November 10, 1936, and prior to July 1, 1951.

§ 32.65–5 Scantlings, material, and workmanship—TB/ALL.

The hull and deck houses shall be of steel or iron construction except that the pilothouse and decks over quarters may be constructed of wood. Scantlings, material, and workmanship, subdivision of cargo spaces, fitting of cofferdams, and testing of tanks shall be at least equivalent to the requirements of the American Bureau of Shipping or other recognized classification society.

§ 32.65–10 Subdivision of cargo space—TB/ALL.

The cargo space shall be divided into tight compartments as necessary to avoid excessive stresses and to provide stability.

§ 32.65–15 Cofferdams—TB/ALL.

Tank vessels equipped to carry Grade A, B, C, or D liquids shall have their galleys, living quarters, general cargo spaces, boiler rooms, and enclosed spaces containing propelling machinery or other machinery where sources of vapor ignition are normally present, segregated from their cargo tanks by cofferdams or equivalent pumprooms, tanks, or air spaces.

§ 32.65–20 Pumprooms—TB/ALL.

(a) Tank vessels handling Grade A, B, C, or D liquids shall have their cargo pumps isolated from all sources of vapor ignition by gastight bulkheads. Totally enclosed motors of the "explosion proof" type, motors ventilated on both the intake and exhaust by ducts to atmosphere, and engines driven by steam shall not be considered to be sources of vapor ignition. The gastight bulkhead between the pumproom and the pump-engine compartment may be pierced by fixed lights, drive shaft and pump-engine control rods, provided that the shafts and rods are fitted with stuffing boxes where they pass through the gastight bulkheads. The access to a cargo pumproom handling such liquids shall be from the open deck. (See § 32.60–20.)

§ 32.65–25 Living quarters—TB/ALL.

Partitions and sheathing shall be of approved fire-resistive construction.

§ 32.65–30 Tank vessels with independent tanks—TB/ALL.

Independent cargo tanks may be located in hold spaces or in other cargo tanks but in all cases a working space of at least 15 inches shall be provided around such independent tanks, or else provisions shall be made for moving them to secure such space. When independent cargo tanks are located in an enclosed space other than a cargo tank, such enclosed space shall be considered as equivalent to a pumproom, and shall be safeguarded as such, as required in the regulations in this subchapter.

§ 32.65–35 Tank vessels carrying Grade A liquids—TB/ALL.

Cargo tanks for Grade A liquids having a Reid vapor pressure in excess of 25 pounds shall be independent of the hull.

§ 32.65–40 Construction and testing of cargo tanks and bulkheads—TB/ALL.

(a) All cargo tanks to be vented at gage pressures of 4 pounds per square inch or less shall be constructed and tested as required by the requirements of the American Bureau of Shipping or other recognized classification society.

(b) All cargo tanks to be vented at gage pressures above 4 pounds per square inch shall be considered as pressure vessels and shall meet the requirements for such vessels as to construction and testing, as set forth in Subchapter F (Marine Engineering) of this chapter.

(c) Gastight bulkheads shall be subjected to a thorough hose test.

[CGFR 65–50, 30 F.R. 16671, Dec. 30, 1965, as amended by CGFR 68–82, 33 F.R. 18805, Dec. 18, 1968]

Subpart 32.70—Hull Requirements for Steel Hull Tank Vessels Constructed Prior to November 10, 1936

§ 32.70–1 Application—TB/ALL.

All steel hull tank vessels, the construction or conversion of which was started prior to November 10, 1936, shall conform to the requirements in this subpart.

§ 32.70–5 Hull requirements; general—TB/ALL.

The scantlings, material, and workmanship, the subdivision of cargo spaces, the arrangement of cofferdams, the testing of tanks and cofferdams, shall be at least equivalent to the requirements of a recognized classification society for the particular service specified in the application for the certificate of inspection and permit for the transportation of liquid flammable cargoes in bulk as of the date when the tank vessel was built

or as of the date when the vessel was converted into a tank vessel. In the absence of such classification requirements, the Officer in Charge, Marine Inspection, shall satisfy himself that the vessel's structure as specified in this section is safe for the service to be specified in its certificate of inspection.

[CGFR 66–33, 31 F.R. 15268, Dec. 6, 1966]

§ 32.70–10 Cofferdams—TB/ALL.

Tank vessels carrying Grade A, B, or C liquids shall be required to conform to the construction requirements in regard to vertical cofferdams in § 32.65–15, except that a dry cargo compartment shall be considered to be equivalent to a cofferdam, and except as provided for in § 32.70–20.

§ 32.70–15 Pumprooms—TB/ALL.

Tank vessels handling Grade A, B, C or D liquid cargo shall meet the requirements for tank vessels in § 32.65–20 except that the electrical installation shall comply with the requirements of § 32.45–10(c).

§ 32.70–20 Pump-engine compartment—TB/ALL.

No cofferdam will be required between a cargo tank and a compartment containing pumping engines and their auxiliaries which are used exclusively during pumping operations, provided the pumping engine compartment contains no cargo valves and is well ventilated and provided further that internal combustion exhaust within the compartment are completely water jacketed or insulated and that gasoline engine intakes are fitted with effective flame arresters.

§ 32.70–25 Cargo tanks—TB/ALL.

Cargo tanks shall comply with the conditions specified in §§ 32.65–30 and 32.65–35, and shall pass the tests required in § 32.65–40: *Provided, however,* That less than 15 inches around such tanks may be accepted if in the judgment of the Officer in Charge, Marine Inspection, making the inspection, a satisfactory inspection of the cargo tanks and hull structure can be made.

Subpart 32.75—Hull Requirements for Wood Hull Tank Vessels Constructed Prior to November 10, 1936

§ 32.75–1 Application—TB/ALL.

All wood hull tank vessels, the construction or conversion of which was started prior to November 10, 1936, shall conform to the requirements in this subpart.

§ 32.75–5 Hull requirements; general—TB/ALL.

The scantlings, material, and workmanship, and the fitting and fastening of parts shall be at least equivalent to the requirements of a recognized classification society for the particular service specified in the application for certificate of inspection and permit for the transportation of liquid flammable cargoes in bulk as of the date when the tank vessel was built, or as of the date when the vessel was converted into a tank vessel. In the absence of such classification requirements, the Officer in Charge, Marine Inspection, shall satisfy himself that the vessel's structure as specified in this section is safe for the service to be specified in its certificate of inspection.

§ 32.75–10 Cargo tanks—TB/ALL.

Cargo tanks shall be independent of the wood hull, shall be made of steel or iron, and shall pass the tests required in § 32.65–40 (a), (b). Where cargo tanks in wood hulls are not arranged to provide working space around them they shall be so constructed as to allow inspection of the hull, tanks, and bilges, and they shall be so installed that they can be moved to allow repairs to the hull structure and to themselves.

§ 32.75–15 Electric bonding and grounding for tanks—TB/ALL.

All independent cargo tanks in wood hull tank vessels shall be electrically bonded together with stranded copper cable of not less than No. 4 B and S gage and one end of this cable shall be grounded to a copper or brass plate of not less than 2 square feet in area and one-sixteenth inch in thickness and this plate shall be securely fastened to the hull, on the outside, at a point where it shall be covered by water when the tank vessel is unloaded.

§ 32.75–20 Hold spaces and bulkheads—TB/ALL.

In wood hull tank vessels containing independent cargo tanks for the transportation of Grade A, B, C, or D liquids the hold spaces shall be considered as equivalent to a pumproom and shall be safeguarded and ventilated as such as required by § 32.65–20. Where the hold

spaces contain equipment or operations which are sources of vapor ignition, such equipment or operations shall be isolated from other spaces by gastight bulkhead or. if it is impracticable to construct a gastight bulkhead, two structurally tight bulkheads without openings, separated by a well-ventilated air space 24 inches wide, where possible may be used.

Subpart 32.80—Tank Barges Constructed of Materials Other Than Steel or Iron

§ 32.80-1 General requirements—B/ALL.

All tank barges with hulls constructed of materials other than iron or steel, the construction or conversion of which was started prior to September 2, 1945, and to which certificates of inspection were issued prior to March 2, 1946, shall be considered the same as tank barges constructed prior to November 10, 1936.

Subpart 32.85—Lamp and Paint Rooms and Similar Compartments on Tankships

§ 32.85-1 Fireproofing of lamp, oil and paint rooms—T/ALL.

Lamp, oil and paint rooms shall be wholly and tightly lined with metal.

PART 33—LIFESAVING EQUIPMENT [1]

Subpart 33.01—General Lifesaving Requirements

Sec.

33.01-1 Inspection of lifesaving appliances—TB/ALL.
33.01-5 Construction of lifesaving equipment—TB/ALL.
33.01-15 Responsibility of master regarding lifesaving equipment—TB/ALL.
33.01-20 Approval for repairs and alterations—TB/ALL.
3301-25. Factory inspection of lifesaving equipment—TB/ALL.
33.01-27 Weight test of lifeboat installation—T/ALL.
33.01-30 Approval of lifesaving appliances—TB/ALL.
33.01-35 Magazine chests for pyrotechnic equipment—T/ALL.

Subpart 33.05—Lifeboats, Liferafts, and Buoyant Apparatus Required

33.05-1 Lifeboats and liferafts for tankships; ocean and coastwise; construction or conversion of which was started prior to November 19, 1952—T/OC.
33.05-2 Lifeboats and liferafts for tankships; ocean and coastwise; construction or conversion of which was started on or after November 19, 1952, and prior to May 26, 1965—T/OC.
33.05-3 Lifeboats and liferafts for tankships; ocean and coastwise; construction or conversion of which started on or after May 26, 1965—T/OC.
33.05-5 Lifeboats for barges; ocean—B/O.
33.05-15 Lifeboats for barges; coastwise—B/C.
33.05-20 Lifeboats and liferafts for tank vessels; Great Lakes—TB/L.
33.05-25 Lifeboats, liferafts, or buoyant apparatus for tank vessels; bays, sounds, lakes other than Great Lakes, and rivers—TB/BR.
33.05-30 Equipment for tank vessels on short voyages beyond certificated waters—TB/LB.
33.05-35 Wooden lifeboats prohibited on tank vessels—TB/ALL.

Subpart 33.07—Substitution of Inflatable Liferafts for Lifeboats, Other Liferafts, Lifefloats and Buoyant Apparatus on Certain Vessels Not on an International Voyage

33.07-1 Inflatable liferafts on barges—B/ALL.
33.07-5 Inflatable liferafts for other liferafts, lifefloats, and buoyant apparatus—T/ALL.
33.07-10 Inflatable liferafts for lifeboats on tankships under 500 gross tons—T/ALL.
33.07-15 Inflatable liferafts for lifeboats on certain tankships of 500 to 1,600 gross tons—T/ALL.
33.07-20 Inflatable liferafts for lifeboats on certain tankships of 1,600 to 3,000 gross tons—T/ALL.
33.07-25 Inflatable liferafts for lifeboats on certain tankships of 3,000 gross tons and upward—T/ALL.

Subpart 33.10—Lifeboat Handling Equipment Requirements

33.10-1 Lifeboat davits—TB/ALL.
33.10-5 Lifeboat winches—TB/ALL.
33.10-10 Blocks and falls for lifeboats—TB/ALL.
33.10-15 Disengaging apparatus—T/OCL.
33.10-20 Disengaging apparatus—T/BR and B/ALL.

Subpart 33.15—Equipment for Lifeboats, Liferafts, or Buoyant Apparatus

33.15-1 Lifeboat, liferaft or buoyant apparatus equipment; general—TB/ALL.
33.15-5 Required equipment for lifeboats—TB/ALL.
33.15-10 Description of equipment for lifeboats—TB/ALL.

[1] 39 FR 10138, Mar. 18, 1974.

Sec.

33.15-15 Required equipment for rigid type liferafts and buoyant apparatus—TB/LBR.
33.15-16 Required equipment for inflatable liferafts—TB/ALL.
33.15-20 Description of equipment for liferafts and buoyant apparatus—TB/LBR.
33.15-25 Portable radiotelegraph apparatus—T/OC.
33.15-90 Lifeboat, liferaft and buoyant apparatus equipment on tank vessels contracted for prior to May 26, 1965—TB/ALL.

Subpart 33.20—Stowage of Lifeboats, Liferafts, and Buoyant Apparatus

33.20-1 Davits and launching devices—TB/ALL.
33.20-3 Embarkation aids into inflatable liferafts—T/ALL.
33.20-5 Lifeboat davit falls—T/ALL.
33.20-10 Lifeboats and liferafts kept clear for launching—TB/ALL.
33.20-15 Stowage of lifeboats and liferafts—TB/ALL.
33.20-20 Hydraulic releases—TB/ALL.

Subpart 33.25—Markings, Care and Inspection

33.25-5 Numbering and marking of lifeboats—TB/ALL.
33.25-10 Marking of liferafts—TB/ALL.
33.25-15 Overhaul—TB/ALL.
33.25-20 Maintenance—TB/ALL.

Subpart 33.30—Manning of Lifeboats and Liferafts

33.30-1 Persons in charge of each lifeboat and liferaft—T/O.
33.30-3 Person in charge of each lifeboat or liferaft—T/CLB.
33.30-5 Manning of lifeboats and liferafts—TB/OCLB.
33.30-10 Motor-propelled lifeboat—TB/ALL.
33.30-15 Lifeboat carrying a radio-telegraph and/or searchlight—TB/ALL.

Subpart 33.35—Life Preservers

33.35-1 Number and type required—TB/ALL.
33.35-5 Distribution and stowage—TB/ALL.
33.35-10 Shipboard inspections—TB/ALL.
33.35-15 Requirements for life preservers—TB/ALL.

Subpart 33.40—Ring Life Buoys and Water Lights

33.40-1 Ring life buoys and water lights, general requirements—TB/ALL.
33.40-5 Number required on tankships—T/ALL.
33.40-10 Number required on tank barges—B/ALL.
33.40-15 Distribution and security—TB/ALL.

Subpart 33.45—Distress Signals

Sec.

33.45-1 Distress signals—T/ALL and B/OC.
33.45-5 Parachute distress signals—T/OC.
33.45-10 Stowage of distress signals—TB/ALL.

Subpart 33.50—Signaling Lamp

33.50-1 Signaling lamp—T/O.

Subpart 33.55—Line-Throwing Appliances

Sec.

33.55-1 Line-throwing appliances required—T/OC.
33.55-5 Accessibility—T/OC.
33.55-10 Equipment for line-throwing appliances—T/OC.
33.55-15 Service recommendations—T/OC.

Subpart 33.60—Emergency Position Indicating Radiobeacon (EPIRB) T/OC

33.60-1 Emergency position indicating radiobeacon (EPIRB) T/OC.

AUTHORITY: The provisions of this Part 33 issued under R.S. 4405, as amended, 4417a, as amended, 4462, as amended, sec. 6(b)(1), 80 Stat. 938; 46 U.S.C. 375, 391a, 416, 49 U.S.C. 1655(b); 49 CFR 1.46(b) (35 F.R. 4959). Interpret or apply R.S. 4488, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 481, 50 U.S.C. 198; E.O. 11239, July 31, 1965, 30 F.R. 9671, 3 CFR, 1965 Supp. Additional authority is cited in parentheses following the sections affected.

SOURCE: The provisions of this Part 33 contained in CGFR 65-50, 30 F.R. 16683, Dec. 30, 1965, unless otherwise noted.

Subpart 33.01—General Lifesaving Requirements

§ 33.01-1 Inspection of lifesaving appliances—TB/ALL.

At each inspection for certification and at any other time as required by the Officer in Charge, Marine Inspection, all lifesaving appliances on a tank vessel shall be inspected.

§ 33.01-5 Construction of lifesaving equipment—TB/ALL.

All tank vessels subject to the regulations in this subchapter shall have lifeboats, disengaging apparatus, liferafts, life preservers, and all other lifesaving apparatus constructed in accordance with the regulations contained in the applicable subparts of Subchapter Q (Specifications) of this chapter: *Provided, however,* That all lifesaving apparatus which is of the character that complied with the rules and regulations of the Commandant, on vessels in existence at the time that the regulations in this subchapter are promulgated and have been

in use on such vessels, may be continued in use so long as such existing lifesaving equipment and apparatus are found to be in good and workable condition. Where lifesaving equipment and apparatus are not found to be in good and workable condition, they shall be repaired or else replaced by lifesaving equipment and apparatus of the latest approved type, as required by the regulations in this subchapter and Subchapter Q (Specifications) of this chapter. Where lifesaving equipment and apparatus are found to be in good and workable condition but deficient as to quantity or numbers, the additional quantity or numbers required by the regulations in this subchapter shall be of the latest approved type.

§ 33.01-15 Responsibility of master regarding lifesaving equipment—TB/ALL.

It shall be the duty of the master or person in charge to see that the lifeboats, liferafts, davits, falls, life preservers, and other lifesaving appliances are at all times ready for use, and that all equipment for his vessel required by the regulations in this subchapter are provided, maintained, and replaced as indicated.

§ 33.01-20 Approval for repairs and alterations—TB/ALL.

No extensive repairs or alterations, except in emergency, shall be made to any lifeboat, lifeboat disengaging apparatus, life preserver, liferaft, or other appliance subject to inspection, without advance notice to the Officer in Charge, Marine Inspection. Such repairs and alterations shall so far as is practicable be made with materials and tested in the manner specified in this subchapter and applicable requirements in Subchapter Q (Specifications) of this chapter for new construction. Emergency repairs or alterations shall be reported as soon as practicable to the Officer in Charge, Marine Inspection, where the vessel may call after such repairs are made; nor shall any lifeboat or liferaft be reconditioned or used on a tank vessel other than that for which it was built, without notice to and supervision by the Officer in Charge, Marine Inspection, where such reconditioning or repairs are to be made.

§ 33.01-25 Factory inspection of lifesaving equipment—TB/ALL.

The Coast Guard District Commander where lifesaving apparatus is built shall detail an inspector to any place where lifeboats, liferafts, or buoyant apparatus are being built, who will inspect and examine carefully their construction and he shall satisfy himself that such lifeboats, liferafts, or buoyant apparatus are constructed in accordance with the drawings, or blueprints, and specifications furnished by the builders to the Coast Guard. When the inspector approves the construction of the lifeboat, life raft, or buoyant apparatus, he will stamp his initials, together with the letters "U.S.C.G." on a blank space on the plate required to be affixed to the unit by the builder. The initials of the inspector shall be satisfactory evidence to all parties interested that the unit has been constructed in accordance with the drawings, or blueprints, and specifications on file with the Coast Guard.

§ 33.01-27 Weight test of lifeboat installation—T/ALL.

(a) The following test shall be made at least once in each two-year period. If practicable, it shall be made at the inspection for certification or at a reinspection.

(b) Each lifeboat shall be lowered to near the water and then be loaded with its allowed capacity, evenly distributed throughout the length, and then be lowered into the water until it is afloat, and be released from the falls. In making this test, persons or dead weight may be used. The total weight used shall be at least equal to the allowed capacity of the lifeboat considering persons to weigh 165 pounds each.

§ 33.01-30 Approval of lifesaving appliances—TB/ALL.

(a) Any type of lifeboat or liferaft approved by the Commandant shall be considered as equivalent to the standard lifeboat or liferaft.

(b) Lifeboats shall be of an approved type and constructed in accordance with Subpart 160.035 of Subchapter Q (Specifications) of this chapter.

(c) A Class 1 motor lifeboat is one that is fitted with a compression-ignition engine, is capable of being readily started in all conditions, and has sufficient fuel for 24 hours continuous operation. The

speed ahead in smooth water when loaded with its full complement of persons and equipment shall be at least 6 knots.

(d) Rigid type liferafts shall be of an approved type and constructed in accordance with Subpart 160.018 of Subchapter Q (Specifications) of this chapter.

(e) Buoyant apparatus shall be of an approved type and constructed in accordance with Subpart 160.010 of Subchapter Q (Specifications) of this chapter.

(f) An inflatable liferaft must meet the following:

(1) The liferaft must be approved under Subpart 160.051 of this chapter.

(2) On a tankship on an international voyage, the liferaft must have a carrying capacity of not less than 6 or more than 25 persons.

(3) Except as required in paragraph (f)(4) of this section, the liferaft must be marked in accordance with § 160.051–8 of this chapter.

(4) After January 1, 1976 on vessels certificated for Great Lakes service and after January 1, 1980 on other certificated vessels, the liferaft must show on or near the liferaft's nameplate, and the liferaft's container must show on or near the plate, marking approved by a Coast Guard inspector that is—

(i) An approval number consisting of "160.051/" followed by a number that is greater than "49" that is followed by a revision number (e.g. 160.051/50/1); or

(ii) An approval number consisting of "160.051/" followed by a number that is smaller than 50 that is followed by a revision number (e.g. 160.051/48/1), the words "MOD. TEMP", a Coast Guard inspector's initials, and the date that an inspector found that the liferaft met § 160.051–5(c)(4) of this chapter.

(g) In general, a suitable rescue boat shall be a small lightweight boat of rigid construction, with built-in buoyancy and capable of being readily launched and easily maneuvered. Also it shall be of adequate proportion to permit taking an unconscious person on board without capsizing. A rescue boat and its installation shall be acceptable to the Officer in Charge, Marine Inspection, as suitable for the rescue of persons accidentally falling over the side or for similar emergency purposes. The size, shape, installation, and other factors of suitability will be determined with due consideration of the size, arrangement, intended service, and crew requirements of the vessel on which it is to be installed. For protected waters, a rescue boat, constructed in accordance with Subpart 160.056 of Subchapter Q (Specifications) of this chapter, is acceptable in meeting the intent of this paragraph. For exposed waters, a more seaworthy rescue boat may be required, but in no case shall more than one approved lifeboat suitable for rescue work be required.

(R.S. 4491, as amended; 46 U.S.C. 489) [CGFR 65–50, 30 F.R. 16683, Dec. 30, 1965, as amended by CGFR 68–65, 33 F.R. 19983, Dec. 28, 1968; CGD 75–040, 40 FR 58454, Dec. 17, 1975]

§ 33.01–35 Magazine chests for pyrotechnic equipment—T/ALL.

Tankships required to carry pyrotechnic distress signals or line-throwing appliances shall be provided with a portable magazine chest. (See Subpart 160.038, portable magazine chests, of Subchapter Q (Specifications) of this chapter.) Magazine chests shall be secured above the freeboard deck away from heat. Stowage in enclosed spaces or adjacent to cargo tanks is prohibited.

Subpart 33.05—Lifeboats, Liferafts, and Buoyant Apparatus Required

§ 33.05–1 Lifeboats and liferafts for tankships; ocean and coastwise; construction or conversion of which was started prior to November 19, 1952—T/OC.

(a) All tankships 500 gross tons and over shall carry a sufficient number of lifeboats on each side to accommodate all persons on board: *Provided,* That such tankships of 350 feet in length or over, having superstructure amidships and propelling machinery aft shall be provided with at least four lifeboats, one on each side in way of the after accommodations, and one on each side in way of amidship accommodations.

(b) All tankships of less than 500 gross tons shall be provided with sufficient lifeboats to accommodate all persons on board.

(c) No lifeboat shall be of less than 180 cubic feet measurement, except, in the case of coastwise vessels, if specifically approved by the Commandant.

(d) All tankships of 1,600 gross tons and over on an international voyage shall carry at least one Class 1 motor lifeboat on each side. The requirement of this paragraph shall not apply except for replacements, and then only if it can

be done without change to existing davits, winches, and arrangements.

(e) Inflatable liferafts may be substituted for lifeboats on certain vessels not on an international voyage in accordance with Subpart 33.07 of this part.

(f) All tankships in ocean service, and all tankships of less than 1,600 gross tons on an international voyage shall carry inflatable liferafts of sufficient capacity to accommodate at least 50 percent of the persons on board. Those tankships having widely separated accommodation and/or working spaces shall have at least one liferaft in each such location.

[CGFR 68-65, 33 F.R. 19984, Dec. 28, 1968]

§ 33.05-2 Lifeboats and liferafts for tankships; ocean and coastwise; construction or conversion of which was started on or after November 19, 1952, and prior to May 26, 1965—T/OC.

(a) All tankships 500 gross tons and over shall carry a sufficient number of lifeboats on each side to accommodate all persons on board: *Provided,* That such tankships of 3,000 gross tons and over, having a superstructure amidships and propelling machinery aft shall be provided with at least four lifeboats, one on each side in way of the after accommodations, and one on each side in way of amidship accommodations.

(b) All tankships of less than 500 gross tons shall be provided with sufficient lifeboats to accommodate all persons on board.

(c) No lifeboat shall be less than 24 feet in length, except where owing to the size of the tankship, or for other reasons, the Commandant may permit smaller lifeboats, but in no case shall they be less than 16 feet in length.

(d) All tankships of 1,600 gross tons and over on an international voyage shall carry at least one Class 1 motor lifeboat on each side. The requirement of this paragraph shall not apply except for replacements, and then only if it can be done without change to existing davits, winches, and arrangements.

(e) Inflatable liferafts may be substituted for lifeboats on certain vessels not on an international voyage in accordance with Subpart 33.07 of this part.

(f) All tankships in ocean service, and all tankships of less than 1,600 gross tons on an international voyage shall carry inflatable liferafts of sufficient capacity to accommodate at least 50 percent of the persons on board. Those tankships having widely separated accommodation and/or working spaces shall have at least one liferaft in each such location.

[CGFR 68-65, 33 F.R. 19984, Dec. 28, 1968]

§ 33.05-3 Lifeboats and liferafts for tankships; ocean and coastwise; construction or conversion of which started on or after May 26, 1965—T/OC.

(a) All ocean and coastwise tankships 500 gross tons and over shall carry a sufficient number of lifeboats on each side to accommodate all persons on board.

(b) All tankships of less than 500 gross tons shall be provided with sufficient lifeboats to accommodate all persons on board.

(c) All tankships of 3,000 gross tons and over on an international voyage shall carry not less than four lifeboats. Two lifeboats shall be carried aft and two amidships except that in tankships which have no amidships superstructure all lifeboats shall be carried aft: *Provided,* That, if in the case of tankships with no amidships superstructure it is impracticable to carry four lifeboats aft, the Commandant may permit instead the carriage aft of one lifeboat on each side of the ship. In such cases:

(1) Each lifeboat shall not exceed 26 feet in length;

(2) Each lifeboat shall be stowed as far forward as practicable, but at least so far forward that the after end of the lifeboat is 1½ times the length of the lifeboat forward of the propeller; and

(3) Each lifeboat shall be stowed as near the sea level as is safe and practicable.

(d) No lifeboat shall be less than 24 feet in length, except where owing to the size of the tankship, or for other reasons, the Commandant may permit smaller lifeboats, but in no case shall they be less than 16 feet in length.

(e) All tankships 1,600 gross tons and over on an international voyage shall carry on each side at least one Class 1 motor lifeboat.

(f) All tankships certificated for ocean service, and all tankships of less than 1,600 gross tons on an international voyage shall carry inflatable liferafts of sufficient capacity to accommodate at least 50 percent of the persons on board. Those tankships having widely separated accommodation and/or working spaces shall have at least one liferaft in each such location.

(g) Inflatable liferafts may be substituted for lifeboats on certain vessels not on an international voyage in accordance with Subpart 33.07 of this part.

[CGFR 68–65, 33 F.R. 19984, Dec. 28, 1968]

§ 33.05–5 Lifeboats for barges; ocean—B/O.

(a) All tank barges which normally operate more than 20 miles offshore shall carry a sufficient number of lifeboats to accommodate all persons on board.

(b) No lifeboat shall be of less than 125 cubic feet measurement.

(c) Inflatable liferafts may be substituted for lifeboats on certain vessels in accordance with Subpart 33.07.

§ 33.05–15 Lifeboats for barges; coastwise—B/C.

(a) All tank vessels operating on the operate 20 miles or less offshore shall carry a sufficient number of lifeboats to accommodate all persons on board.

(b) No lifeboat on a tank barge of 100 gross tons or over shall be of less than 125 cubic feet measurement, except by approval of the Commandant. No lifeboat on a tank barge of less than 100 gross tons shall be of less than 90 cubic feet measurement, except by approval of the Commandant.

(c) Inflatable liferafts may be substituted for lifeboats on certain vessels in accordance with Subpart 33.07.

§ 33.05–20 Lifeboats and liferafts for tank vessels; Great Lakes—TB/L.

(a) All tank barges which normally waters of the Great Lakes shall carry a sufficient number of lifeboats to accommodate all persons on board.

(b) No lifeboat on a tank vessel of 100 gross tons or over shall be of less than 90 cubic feet measurement, except by approval of the Commandant. No lifeboat on a tank vessel of less than 100 gross tons shall be of less than 60 cubic feet measurement.

(c) All tankships of 300 gross tons and over in Great Lakes service shall carry, in addition to the lifeboats required by paragraph (a) of this section, approved inflatable liferafts of such aggregate capacity to accommodate all persons on board: *Provided,* That such tankships, which are equipped with lifeboats in accordance with § 33.05–1, shall carry additional approved inflatable liferafts for not less than 50 percent of the persons carried. Any such tankship, when it has crew, berthing and/or working spaces which are widely separated, shall have at least two approved inflatable liferafts. The capacity and location shall be to the satisfaction of the Officer in Charge, Marine Inspection.

(d) Inflatable liferafts may be substituted for lifeboats on certain vessels in accordance with Subpart 33.07.

[CGFR 65–50, 30 F.R. 16683, Dec. 30, 1965, as amended by CGFR 68–18, 33 F.R. 2847, Feb. 10, 1968]

§ 33.05–25 Lifeboats, liferafts, or buoyant apparatus for tank vessels; bays, sounds, lakes other than Great Lakes, and rivers—TB/BR.

(a) All tank vessels, except those on an international voyage, operating exclusively on bays, sounds, lakes (other than the Great Lakes), rivers, harbors, or inland waters tributary to the Gulf of Mexico, shall carry lifeboats, liferafts, or buoyant apparatus of sufficient number to accommodate all persons on board.

(b) No lifeboat shall be of less than 60 cubic feet measurement.

(c) The minimum size of any piece of buoyant apparatus shall be such as to accommodate at least five persons.

(d) Inflatable liferafts may be substituted for lifeboats, liferafts and buoyant apparatus on certain vessels in accordance with Subpart 33.07.

(e) All tankships on an international voyage shall meet the applicable requirements of §§ 33.05–1 through 33.05–3.

§ 33.05–30 Equipment for tank vessels on short voyages beyond certificated waters—TB/LB.

(a) The Officer in Charge, Marine Inspection, may issue permits to tank vessels of less than 100 gross tons which are certificated for lake, bay, and sound routes, to engage on short voyages to points beyond such waters, but not more than 15 miles from port of refuge: *Provided,* That such vessels are equipped with a sufficient number of lifeboats, liferafts, or buoyant apparatus to accommodate all persons on board.

(b) No lifeboat shall be of less than 60 cubic feet measurement. The minimum size of any liferaft or piece of buoyant apparatus shall be such as to accommodate at least five persons.

(c) Inflatable liferafts may be substituted for lifeboats, liferafts and buoy-

ant apparatus on certain vessels in accordance with Subpart 33.07.

§ 33.05–35 Wooden lifeboats prohibited on tank vessels—TB/ALL.

Lifeboats installed on tank vessels after September 1, 1943, shall be constructed of metal or other material approved by the Commandant. Internals, such as buoyancy tanks, water tanks, and provision and equipment lockers may be constructed of suitable materials other than metal which have been approved by the Commandant.

Subpart 33.07—Substitution of Inflatable Liferafts for Lifeboats, Other Liferafts, Lifefloats, and Buoyant Apparatus on Certain Vessels Not on an International Voyage

§ 33.07–1 Inflatable liferafts on barges—B/ALL.

(a) On all tank barges inflatable liferafts may be substituted for lifeboats, other types of liferafts, lifefloats, and buoyant apparatus wherever they may be required.

(b) The capacity of inflatable rafts carried in place of other liferafts, lifefloats, and buoyant apparatus shall be sufficient to accommodate all persons on board.

(c) The substitution of inflatable liferafts shall not be made without prior approval of the Officer in Charge, Marine Inspection.

§ 33.07–5 Inflatable liferafts for other liferafts, lifefloats, and buoyant apparatus—T/ALL.

(a) On all tankships inflatable liferafts may be permitted as substitutes for other types of liferafts, lifefloats, and buoyant apparatus required by this part.

(b) The capacity of inflatable liferafts carried in place of other type liferafts, lifefloats, and buoyant apparatus shall be at least equivalent to that required of equipment for which substitution is made. This requirement is in addition to the inflatable liferafts required by Subpart 33.05 of this part.

(c) The substitution of inflatable liferafts shall not be made without prior approval of the Officer in Charge, Marine Inspection.

[CGFR 68–65, 33 F.R. 19984, Dec. 28, 1968]

§ 33.07–10 Inflatable liferafts for lifeboats on tankships under 500 gross tons—T/ALL.

(a) On all tankships under 500 gross tons, inflatable liferafts may be substituted for all required lifeboats.

(b) The total capacity of the inflatable liferafts shall be at least equal to the total number of persons that the lifeboats would have been required to accommodate. In the case of total substitution of inflatable liferafts for lifeboats, at least two inflatable liferafts shall be carried. Partial substitution is permissible provided the aggregate lifeboat and inflatable liferaft capacity is sufficient to accommodate the required number of persons carried.

(c) Where substitution of inflatable liferafts is made, a suitable rescue boat shall be provided. In the case of partial substitution, a lifeboat may serve as the rescue boat.

(d) The substitution of inflatable liferafts for lifeboats shall not be made without prior approval of the Officer in Charge, Marine Inspection.

[CGFR 65–50, 30 F.R. 16683, Dec. 30, 1965, as amended by CGFR 68–65, 33 F.R. 19984, Dec. 28, 1968]

§ 33.07–15 Inflatable liferafts for lifeboats on certain tankships of 500 to 1,600 gross tons—T/ALL.

(a) On all tankships of 500 gross tons and upwards to 1,600 gross tons inflatable liferafts may be substituted for all required lifeboats provided one approved lifeboat of a size acceptable to the Officer in Charge, Marine Inspection, suitable for rescue purposes, is installed.

(b) The aggregate lifeboat and inflatable liferaft capacity shall be at least equal to the total number of persons that the lifeboats would have been required to accommodate.

(c) The launching arrangement and location of the lifeboat to be used as rescue boat shall be such that it can be readily launched and shall be to the satisfaction of the Officer in Charge, Marine Inspection.

(d) The substitution of inflatable liferafts for lifeboats shall not be made with out prior approval of the Officer in Charge, Marine Inspection.

§ 33.07–20 Inflatable liferafts for lifeboats on certain tankships of 1,600 to 3,000 gross tons—T/ALL.

(a) On all tankships of 1,600 gross tons and upwards to 3,000 gross tons

inflatable liferafts may be substituted for all except two of the required lifeboats. These lifeboats shall be of a size acceptable to the Officer in Charge, Marine Inspection, and shall be suitable for rescue purposes. In all cases, two approved lifeboats, one on each side, shall be provided.

(b) The aggregate lifeboat and inflatable liferaft capacity shall be at least equal to the total number of persons that the lifeboats, for which substitutions are made plus those remaining on board, would have been required to accommodate.

(c) The subsitution of inflatable liferafts for lifeboats shall not be made without prior approval of the Officer in Charge, Marine Inspection.

§ 33.07-25 Inflatable liferafts for lifeboats on certain tankships of 3,000 gross tons and upward—T/ALL.

(a) The Commandant may give special consideration to the substitution of approved inflatable liferafts for required lifeboats on tankships of 3,000 gross tons and over.

Subpart 33.10—Lifeboat Handling Equipment Requirements

§ 33.10-1 Lifeboat davits—TB/ALL.

(a) No type or make of mechanical or gravity davit shall be used unless it has first been approved by the Commandant. For construction of davits see Subpart 160.032 of Subchapter Q (Specifications) of this chapter.

(b) On any tank vessel the keel of which was laid after September 1, 1941, davits for lifeboats weighing in excess of 5,000 pounds when fully equipped (but without persons) shall be of the gravity type.

(c) On tank vessels of 1,600 gross tons and over on an international voyage, contracted for on or after May 26, 1965, all davits shall be of the gravity type.

(d) No davit arm or frame comprising mechanical or gravity davits shall be placed on board any vessel until all the requirements of this section and Subpart 160.032 of Subchapter Q (Specifications) of this chapter have been met.

(e) Whenever mechanical or gravity davits or parts of davits, such as davit arms, or frames, are installed on vessels, to take the place of davits, davit arms, or frames which have been damaged or broken, such davits or frames shall have the manufacturer's nameplate affixed thereto.

§ 33.10-5 Lifeboat winches—TB/ALL.

(a) When lifeboat winches are installed on tank vessels, wire falls shall be provided for each set of davits.

(b) On tankships of 500 gross tons and over in ocean or coastwise service, construction or conversion of which is started on or after November 19, 1952, lifeboat winches shall be provided for all lifeboats, where the deck on which the lifeboats are carried exceeds 20 feet from the lightest seagoing draft.

(c) Lifeboat winches proposed for use in new installations shall be of an approved type and constructed in accordance with Subpart 160.015 of Subchapter Q (Specifications) of this chapter.

(d) Suitable fabric covers shall be provided, so fitted over exposed mechanisms that ice formations may be readily broken adrift when necessary to operate the lifeboat winch.

(e) Installation: Lifeboat winches shall be so located that the operator can observe the movement of the lifeboat during the lowering operation. The lead of the falls to the lifeboat winch shall be in accordance with § 33.10-10 (g).

(f) Tests: Upon completion of the installation of all lifeboat winches, and before the vessel is certificated for service, the following tests and examinations shall be made in the presence of an inspector:

(1) Swing lifeboat out from chocks and lower to level for loading, at which point the lifeboat shall be loaded with dead weight equivalent to the number of persons allowed (165 pounds per person) together with weight of equipment, plus 10 percent of the total load. The lifeboat should then be lowered to the water, stopping at approximately 6-foot intervals by action of the counterweight alone. During the test the following observations should be made:

(i) Brake action shall be smooth, but positive. Brakes exposed to the weather shall also be tested under the load lowering condition with the braking surface wetted.

(ii) Counterweight shall be capable of stopping and holding the lifeboat when released.

(iii) The lifeboat winch shall be capable of controlling the speed of lowering of the fully equipped lifeboat with its complement of persons on board to not more than 120 feet per minute. In addition, the speed of lowering of the fully equipped lifeboat without its complement of persons shall be not less than 40 feet per minute.

(iv) No part of lowering gear shall show any distress under load.

(v) Deck under lifeboat winch and davits must be of sufficient strength to prevent any undue stress of the deck under load.

(vi) Mechanical davits shall swing to extreme outboard position without slacking the lifeboat winch brake.

(vii) Action of governor brake and lowering speed permitted by same should be noted.

(viii) Determine that falls are of sufficient length to lower to light load line with vessel listed 15 degrees either way.

(2) A report of the results of the installation test covering all the above points shall be recorded.

§ 33.10–10 Blocks and falls for lifeboats—TB/ALL.

Blocks and falls installed after May 1, 1942, shall conform to the following requirements:

(a) All blocks, falls, fairleads, padeyes, fastenings, etc., used in connection with lifeboat gear shall be designed with a minimum factor of safety of six, based on the maximum working load.

(b) Where lifeboat winches are installed, not more than two-part wire falls shall be used, except in specific cases where three-part wire falls may be accepted. Where lifeboat winches are not used, the falls shall be of manila rope or equivalent but wire rope may not be used.

(c) Wire rope falls of 6 x 19 regular lay filler wire construction prelubricated at the factory with suitable neutral wire rope lubricant shall be accepted as standard. Any other type of wire superior or equally as good as the minimum standard specified may be used.

(d) Falls shall be of such length that the lifeboat may be lowered to the water with the vessel at the lightest seagoing draft, listed 15 degrees either way.

(e) All ocean and coastwise vessels and all other vessels of over 1,000 gross tons, not fitted with lifeboat winches, shall be provided with covered tubs boxes, or reels for stowage of falls and with suitable lowering bitts in easily accessible positions; except that all ocean and coastwise, self-propelled vessels of over 1,000 gross tons, not fitted with lifeboat winches for which contracts for construction are let on or after September 2, 1945, shall be fitted with cruciform bitts in such position as will render lowering practicable.

(f) Where more than one lifeboat is served by the same set of davits, if the falls are of manila rope, separate falls shall be provided to serve each lifeboat.

(g) Such blocks as are necessary to allow the falls to lead fair in all positions of the davit shall be fitted. Sheaves for wire rope shall have a diameter at the base of the groove at least equal to 12 times the diameter of the rope.

(h) There shall be ample clearance between the cheeks of blocks in which manila rope is used. The width between the cheeks shall be half an inch greater than the diameter of new ropes when those ropes are 3¾ inches in circumference or greater; blocks for smaller ropes shall be designed with clearance in the same proportion.

(i) Means for lubrication shall be provided for all moving parts of blocks.

(j) Where lifeboat winches are provided on tank vessels, construction or conversion of which was started prior to November 19, 1952, there shall be at least 8 feet between the center of the drum and the center of the nearest sheave.

(k) Where lifeboat winches are provided on tank vessels, construction or conversion of which is started on or after November 19, 1952, the lead sheaves to the drums shall be so located as to provide fleet angles of not more than 8 degrees for grooved drums and not more than 4 degrees for nongroved drums. By fleet angle is meant the angle included between an imaginary line from the lead sheave perpendicular to the axis of the drum and the line formed by the wire rope when led from the lead sheave to either extremity of the drum.

§ 33.10–15 Disengaging apparatus—T/OCL.

(a) *Type required.* (1) Lifeboats on all ocean, coastwise and Great Lakes tankships of over 3,000 gross tons, the construction or conversion of which is started on or after January 1, 1961, shall

be fitted with mechanical disengaging apparatus of an approved type constructed in accordance with Subpart 160.033 of Subchapter Q (Specifications) of this chapter. Such disengaging apparatus shall be so arranged as to make it possible for the lifeboats to be launched while such vessels are under way or stopped, and for both ends of the lifeboat to be released simultaneously, under tension, by one person. The gears shall be capable of being released from one position in the lifeboat while the boat is fully loaded with allowed persons and equipment. Simultaneous release shall be effected by partially rotating a shaft which shall be continuous and extend from one point of contact with the hooks.

(2) Lifeboats on all ocean, coastwise and Great Lakes tankships of not over 3,000 gross tons shall be fitted with suitable disengaging apparatus. Mechanical disengaging apparatus, if fitted, shall be of approved type constructed in accordance with Subpart 160.033 of Subchapter Q (Specifications) of this chapter.

(3) Lifeboats on all ocean, coastwise and Great Lakes tankships of over 3,000 gross tons, the construction or conversion of which is started before January 1, 1961, shall be fitted with suitable disengaging apparatus. Mechanical disengaging apparatus, if fitted, shall be as follows:

(i) On all such tankships mechanical disengaging apparatus shall be of a type approved by the Commandant.

(ii) On all such ocean and coastwise tankships, the construction or conversion of which was started on or after July 1, 1961, the arrangement shall be as described in subparagraph (1) of this paragraph.

(b) *Replacement of lifeboats on vessels of over 3,000 gross tons.* (1) Replacement of lifeboats on ocean, coastwise and Great Lakes tankships of over 3,000 gross tons shall be in accordance with the following:

(1) All replacement lifeboats shall be fitted with approved mechanical disengaging apparatus constructed and arranged as described in paragraph (a)(1) of this section.

(2) Replacement of lifeboats in accordance with the provisions of this paragraph may be made on an individual lifeboat basis.

§ 33.10–20 Disengaging apparatus—T/BR and B/ALL.

(a) Lifeboats shall be fitted with suitable disengaging apparatus. Mechanical disengaging apparatus shall be of a type approved by the Commandant.

(b) Not more than one type of releasing gear shall be fitted in the lifeboats of a particular vessel unless otherwise approved by the Commandant.

Subpart 33.15—Equipment for Lifeboats, Liferafts, or Buoyant Apparatus

§ 33.15–1 Lifeboat, liferaft or buoyant apparatus equipment; general—TB/ALL.

(a) The provisions of this subpart with the exception of § 33.15–90 shall apply to all vessels contracted for on or after May 26, 1965. Vessels contracted for prior to May 26, 1965 shall meet the requirements of § 33.15–90.

(b) Equipment for lifeboats, liferafts, and buoyant apparatus shall be of good quality, efficient for the purpose they are intended to serve, and kept in good condition.

(c) Lifeboats, liferafts and buoyant apparatus shall be fully equipped before the vessel is navigated and the equipment shall remain in such lifesaving appliances throughout the voyage except as provided by § 33.25–15.

(d) It shall be unlawful to stow in any lifeboat, liferaft, or buoyant apparatus any article not required by this subpart unless such articles can be properly stowed so as not to reduce the seating capacity or space available to the occupants and so as not to adversely affect the seaworthiness of such appliances or, in the case of lifeboats, overload the davits or winches.

(e) Loose equipment, except boathooks in lifeboats, shall be securely attached to the lifesaving appliance to which it belongs.

§ 33.15–5 Required equipment for lifeboats—TB/ALL.

(a) The lifeboats for all tank vessels shall be equipped in accordance with Table 33.15–5 (a). For a description of the items contained in this table, and the units comprising the items, see the applicable paragraphs of § 33.15–10. The letter identification prefixing the item in the table corresponds to the paragraph designations in § 33.15–10.

TABLE 33.15-5(a)

Letter identification	Item	Tankship			Tank barge—all waters
		Ocean and coastwise	Great Lakes	Lakes, bays, sounds, and rivers	
a	Bailer	1	1	None	None
b	Bilge pump	1	None	None	None
c	Boathooks	2	1	1	[1] 2
d	Bucket	2	1	1	1
e	Compass and mounting	1	None	None	None
f	Ditty bag	1	None	None	None
g	Drinking cup	1	None	None	[2] 1
h	Fire extinguisher (motor-propelled lifeboats only)	2	2	2	2
i	First-aid kit	1	None	None	None
j	Flashlight	1	1	None	None
k	Hatchet	2	2	1	None
l	Heaving line	2	None	None	None
m	Jackknife	1	None	None	[2] 1
n	Ladder, lifeboat, gunwale	1	None	None	None
o	Lantern	1	1	1	1
p	Lifeline	1	1	1	1
q	Life preservers	2	2	2	2
r	Locker	1	1	None	None
s	Mast and sail (oar-propelled lifeboats only)	1	None	None	None
t	Matches (boxes)	2	1	1	[1] 2
u	Milk, condensed (pounds per person)	1	None	None	None
v	Mirror, signaling	2	None	None	None
w	Oars (units)	[3] 1	[3] 1	[3] 1	[3] 1
x	Oil, illuminating (quarts)	1	1	None	None
y	Oil, storm (gallons)	1	1	None	None
z	Painter	2	2	1	1
aa	Plug	1	1	1	1
bb	Provisions (pounds per person)	2	None	None	None
cc	Rowlocks (units)	[3] 1	[3] 1	[3] 1	[3] [4] 1
dd	Rudder and tiller	1	1	None	[2] 1
ee	Sea anchor	1	1	None	None
ff	Signals, distress, floating orange smoke	2	None	None	None
gg	Signals, distress, red hand flare (units)	[3] 1	[3] ½ unit	None	None
hh	Signals, distress, red parachute flare (units)	[3] [5] 1	[3] ½ unit	None	None
ii	Tool kit (motor-propelled lifeboats only)	[3] 1	[3] 1	[3] 1	[3] 1
jj	Water (quarts per person)	3	None	None	[2] 1
kk	Whistle, signaling	1	None	None	None
ll	Fishing kit	1	None	None	None
mm	Cover, protecting	1	None	None	None
nn	Signals, lifesaving	1	None	None	None
oo	Desalting kit	[6] 1	None	None	None

[1] Only 1 required on other than seagoing barges.
[2] Seagoing barges only.
[3] For description of unit see § 33.15-10.
[4] Lifeboats on barges need only carry 4 rowlocks.
[5] Vessels in coastwise service need only carry 1 unit for each 5 lifeboats or fraction thereof.
[6] Optional equipment. See § 33.15-10(jj), water

§ 33.15-10 Description of equipment for lifeboats—TB/ALL.

(a) *Bailer.* The bailer shall have a lanyard attached and shall be of sufficient size and suitable for bailing.

(b) *Bilge pump.* Bilge pumps shall be of an approved type, constructed in accordance with Subpart 160.044 of Subchapter Q (Specifications) of this chapter. They shall be of the size given in Table 33.15-10 (b) depending upon the capacity of the lifeboat as determined by the six-tenths rule as described in § 160.035-9(b).

TABLE 33.15-10(b)

Capacity of lifeboat, cubic feet		Bilge pump size
Over—	Not over—	
--------	330	1
330	700	2
700	--------	3

(c) *Boathooks.* Boathooks shall be of the single hook ballpoint type. Boathook handles shall be of clear grained white ash, or equivalent, and of a length

and diameter as given in Table 33.15–10 (c).

TABLE 33.15–10(c)

Length of lifeboat (feet)		Boathook handles	
Over—	Not over—	Diameter (inches)	Length (feet)
-------	23	1½	8
23	29	1¾	10
29	------	2	12

(d) *Bucket.* The bucket shall be of heavy gage galvanized iron, or other suitable corrosion-resistant metal, of not less than 2 gallon capacity, and shall have a 6-foot lanyard of 12-thread manila attached.

(e) *Compass and mounting.* The compass and mounting shall be of an approved type, constructed in accordance with U.S. Coast Guard Specification dated December 14, 1944.

(f) *Ditty bag.* The ditty bag shall consist of a canvas bag and shall contain a sailmaker's palm, needles, sail twine, marline and marlinspike.

(g) *Drinking cups.* Drinking cups shall be enamel coated or plastic, graduated in ounces, and be provided with lanyards 3 feet in length.

(h) *Fire extinguisher.* Fire extinguishers shall be of an approved type (4 pounds CO_2 or 2 pounds dry chemical). One shall be attached to each end of the lifeboat.

(i) *First-aid kit.* The first-aid kit shall be of an approved type, constructed and fitted in accordance with Subpart 160.041 of Subchapter Q (Specifications) of this chapter.

(j) *Flashlights.* The flashlight shall be of an approved size No. 3, constructed in accordance with Subpart 161.008 of this chapter. Three spare cells (or one 3-cell battery) and two spare bulbs, stowed in a watertight container, shall be provided with each flashlight. Batteries shall be replaced yearly during the annual stripping, cleaning, and overhaul of the lifeboat.

(k) *Hatchet.* Hatchets shall be of an approved type, constructed in accordance with Subpart 160.013 of Subchapter Q (Specifications) of this chapter. They shall be attached to the lifeboat by individual lanyards and be readily available for use, one at each end of the lifeboat.

(l) *Heaving line.* The heaving line shall be of adequate strength, 10 fathoms in length, and one inch in circumference. It shall be of such quality as to be buoyant after 24 hours submergence.

(m) *Jackknife.* The jackknife (with can opener) shall be of an approved type, constructed in accordance with Subpart 160.043 of Subchapter Q (Specifications) of this chapter.

(n) *Ladder, lifeboat gunwale.* The lifeboat gunwale ladder shall consist of 3 flat wood steps cut out for handholds. The steps shall be spaced 12 inches apart and fastened with ⅝ inch diameter manila rope. Each rope end shall be tied inside the lifeboat at about amidships with the ladder stowed on top of the side benches and ready for immediate use. Other suitable devices may be specifically approved.

(o) *Lantern.* The lantern shall contain sufficient oil to burn for at least 9 hours, and shall be ready for immediate use.

(p) *Lifeline.* The lifeline shall be properly secured to both sides of the lifeboat along its entire length, festooned in bights not longer than 3 feet, with a seine float in each bight, which float may be omitted if the line is of an inherently buoyant material and absorbs little or no water. The lifeline shall be of a size and strength not less than ⅜-inch diameter manila. The bights shall hang to within 12 inches of the water when the lifeboat is light.

(q) *Life preservers.* Life preservers shall be of an approved type, constructed in accordance with the applicable subparts of Subchapter Q (Specifications) of this chapter.

(r) *Locker.* The locker shall be suitable for the storage and preservation of the small items of equipment.

(s) *Mast and sail.* A unit, consisting of a standing lug sail together with the necessary spars and rigging, shall be provided in general agreement with Table 33.15–10(s). The sails shall be of good quality canvas, or other material acceptable to the Commandant, colored Indian Orange (Cable No. 70072, Standard Color Card of America). Rigging shall consist of galvanized wire rope not less than three-sixteenths inch in diameter. The mast and sail shall be protected by a suitable cover.

(t) *Matches.* A box of safety matches in a watertight container stowed in an equipment locker or secured to the underside of the stern thwart if no locker is fitted.

(u) *Milk, condensed.* One pound of condensed milk shall be provided for such person the lifeboat is certified to carry, to be stowed in lockers or other compartments, providing suitable protection.

(v) *Mirrors, signaling.* Signaling mirrors shall be of an approved type.

(w) *Oars.* A unit, consisting of a complement of rowing oars and steering oar, shall be provided for each lifeboat in accordance with Table 33.15–10(w), except that motor-propelled and hand-propelled lifeboats need only be equipped with 4 rowing oars and steering oar. All oars shall be buoyant.

(x) *Oil, illuminating.* One quart of illuminating oil shall be provided in a metal container.

TABLE 33.15-10(s)

Length of lifeboat (feet)		Standing lug sail							Mast [1]		Yard [1]	
Over—	Not over—	Area (square feet)	Luff and head lengths	Leach length	Foot length	Clew to throat	Ounces per square	Commercial designation No.	Length	Diameter (inches)	Length	Diameter (inches)
			Ft. In.	Ft. In.	Ft. In.	Ft. In.			Ft. In.		Ft. In.	
----------	17	58	5 11	12 1	8 10	10 10	14.35	10	11 2	3	6 11	2
17	19	74	6 8	13 8	10 0	12 2	14.35	10	12 6	3	7 8	2
19	21	93	7 5	15 1	11 2	13 8	14.35	10	13 10	3½	8 5	2½
21	23	113	8 3	16 11	12 4	15 1	14.35	10	15 2	3½	9 3	2½
23	25	135	9 0	18 6	13 6	16 6	14.35	10	16 6	4	10 0	3
25	27	158	9 9	20 0	14 7	17 10	17.50	8	17 10	4	10 9	3
27	29	181	10 5	21 5	15 7	19 1	17.50	8	19 2	4½	11 5	3¼
29	31	203	11 0	22 8	16 6	20 3	20.74	6	20 6	4½	12 0	3¼
31	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]

[1] Mast lengths measured from heel to center of upper halyard sheave. Mast diameters measured at thwart. Mast and yard shall be of clear-grained spruce, fir, or equivalent.
[2] Subject to special consideration.

TABLE 33.15-10(w)

Length of lifeboat (feet)		Number of oars		Length of oars (feet)	
Over—	Not over—	Rowing	Steering	Rowing	Steering
----	15	4	1	8	9
15	19	6	1	10	11
19	21	6	1	11	12
21	23	6	1	12	13
23	25	8	1	13	14
25	27	8	1	14	15
27	------	8	1	15	16

(y) *Oil, storm.* One gallon of vegetable, fish, or animal oil shall be provided in a suitable metal container so constructed as to permit a controlled distribution of oil on the water, and so arranged that it can be attached to the sea anchor.

(z) *Painter.* Painters shall be of manila rope not less than 2¾ inches in circumference, or equivalent, and of a length not less than 3 times the distance between the deck on which the lifeboat is stowed and the light draft of the vessel. For lifeboats on vessels in ocean, coastwise or Great Lakes service one of the painters shall have a long eye splice and be attached to the thwart with a toggle. The other painter shall be attached to the stem.

(aa) *Plug.* The automatic drain required in the lifeboat shall be provided with a cap or plug attached to the lifeboat by a suitable chain.

(bb) *Provisions.* Two pounds of hard bread or its approved equivalent shall be provided for each person the lifeboat is certified to carry. The provisions shall be packaged in hermetically sealed cans of an approved type. The cans shall be stowed in lockers or other compartments providing suitable protection.

(cc) *Rowlocks.* A unit, consisting of sufficient rowlocks and rowlock sockets for each oar required by Table 33.15–10 (w) plus 2 additional rowlocks. The rowlocks shall be attached to the lifeboat by separate chains so as to be available for immediate use, except that the two additional spare rowlocks shall be carried in the equipment locker or stowed near the stern if no locker is fitted. The rowlocks and rowlock sockets shall be distributed so as to provide the maximum

amount of single banked oars practicable.

(dd) *Rudder and tiller.* The rudder and tiller shall be constructed in accordance with § 160.035–3(t) in Subpart 160.035 of Subchapter Q (Specifications) of this chapter.

(ee) *Sea anchor.* The sea anchor shall be of an approved type.

(ff) *Signals, distress, floating orange smoke.* Two approved floating orange smoke distress signals, constructed in accordance with Subpart 160.022 of Subchapter Q (Specifications) of this chapter. The service use of this equipment shall be limited to three years from date of manufacture, and replacement shall be made no later than the first annual stripping, cleaning, and overhaul of the lifeboat after the date of expiration.

(gg) *Signals, distress, red hand flare.* A unit, consisting of twelve approved hand red flare distress signals, in a watertight container, constructed in accordance with Subpart 160.021 or 160.023 of Subchapter Q (Specifications) of this chapter. The service use of this equipment shall be limited to three years from date of manufacture, and replacement shall be made no later than the first annual stripping, cleaning, and overhaul of the lifeboat after the date of expiration.

(hh) *Signals, distress, red parachute flare.* A unit, consisting of twelve approved parachute red flare distress signals, with an approved means of projecting them, all contained in a portable watertight container; or twelve approved hand-held rocket-propelled parachute red flare distress signals contained in a portable watertight container. Construction shall be in accordance with Subparts 160.024 and 160.028 or 160.036 of Subchapter Q (Specifications) of this chapter. The service use of this equipment shall be limited to three years from date of manufacture, and replacement shall be made no later than the first annual stripping, cleaning, and overhaul of the lifeboat after the date of expiration.

(ii) *Tool kit.* The tool kit shall consist of at least the following tools contained in a suitable container:

(1) One 12-ounce ball peen hammer.
(2) One screwdriver with 6-inch blade.
(3) One pair 8-inch slip joint pliers.
(4) One 8-inch adjustable end wrench.

(jj) *Water.* (1) for each person the lifeboat is certified to carry, there shall be provided three quarts of drinking water consisting of nine approved hermetically sealed containers per person constructed and filled in accordance with Subpart 160.026 of Subchapter Q (Specifications) of this chapter. The service life of this equipment shall be limited to 5 years from date of packing, and replacement shall be made no later than the first annual stripping, cleaning, and overhaul of the lifeboat after date of expiration. Approved desalting kits capable of producing an equal amount of drinking water may be substituted for not more than one-third of the drinking water required to be carried.

(2) The drinking water containers shall be stowed in drinking water tanks, lockers, or other compartments providing suitable protection.

(kk) *Whistle, signaling.* The whistle shall be of the ball-type, of corrosion-resistant construction, with a 36-inch lanyard attached, and in good working order.

(ll) *Fishing kit.* The fishing kit shall be of approved type construction in accordance with Subpart 160.061 of Subchapter Q (Specifications) of this chapter.

(mm) *Cover, protecting.* The protecting cover shall be of a highly visible color, and capable of protecting the occupants against injury or exposure.

(nn) *Table of lifesaving signals.* The table of lifesaving signals shall be in accordance with the provisions of Chapter V, Regulation 16, of the International Convention for Safety of Life at Sea, 1960, and shall be printed on water resistant paper.

(oo) *Desalting kit.* One or more approved desalting kits may be used as a substitute for one-third of the required amount of drinking water per person, and shall be constructed in accordance with Subpart 160.058 of Subchapter Q (Specifications) of this chapter.

[CGFR 65–50, 30 F.R. 16683, Dec. 30, 1965, as amended by CGFR 68–32, 33 F.R. 5713, Apr. 12, 1968; CGFR 70–143, 35 F.R. 19905, Dec. 30, 1970]

§ 33.15–15 Required equipment for rigid type liferafts and buoyant apparatus—TB/LBR.

(a) The rigid type liferafts and buoyant apparatus for all vessels shall be equipped in accordance with Table 33.15–15 (a). For a description of the items contained in this table and the units comprising the items, see the applicable paragraphs of § 33.15–20. The

letter identification prefixing the item in the table corresponds to the paragraph designation in § 33.15–20.

TABLE 33.15-15 (a)

Letter identification	Item	Liferaft		Buoyant apparatus—All waters
		Great Lakes	Lakes, bays, sounds rivers,	
a	Boathook	1	1	None
b	Lifeline	[1] 1	[1] 1	[1] 1
c	Matches (boxes)	1	None	None
d	Oars (units)	[2] 1	[2] 1	None
e	Oil, storm (gallons)	1	None	None
f	Painter	1	1	[2] 1
g	Rowlocks (units)	[2] 1	[2] 1	None
h	Sea anchor	1	None	None
i	Signals, distress (units).	[2] 1	None	None
j	Water light	1	None	[4] [5] 1

[1] Not required on Type A liferafts.
[2] For description of unit see § 33.15–20.
[3] Need only be 2 inches in diameter and of a length equal to the distance between the deck where stowed to the vessel's light draft plus 6 feet.
[4] Not required on buoyant apparatus for less than 25 persons.
[5] Applies to ocean, coastwise and Great Lakes routes.

§ 33.15–16 Required equipment for inflatable liferafts—TB/ALL.

(a) Inflatable liferafts shall be equipped with ocean service equipment for vessels on ocean and coastwise routes and with limited service equipment for vessels on Great Lakes, lakes, bays, sounds, and river routes in accordance with Subpart 160.051 of Subchapter Q (Specifications) of this chapter.

NOTE: Subpart 160.051 of this chapter requires the servicing of inflatable liferafts at approved servicing facilities. Included in the servicing at an approved facility is a complete inspection of the required equipment by a marine inspector.

§ 33.15–20 Description of equipment for liferafts and buoyant apparatus—TB/LBR.

(a) *Boathook.* Boathooks shall be of the single hook ball point type. Boathook handles shall be of clear grained white ash, or equivalent, not less than 8 feet long and 1½ inches in diameter.

(b) *Lifeline.* The lifeline shall be properly secured around the sides and ends of the liferaft, or buoyant apparatus, festooned in bights not longer than 3 feet, with a seine float in each bight, which float may be omitted if the line is of an inherently buoyant material and absorbs little or no water. The lifeline shall be of a size and strength not less than ⅜-inch diameter manila.

(c) *Matches.* A box of safety matches in a watertight container.

(d) *Oars.* A unit, consisting of 4 rowing oars and one steering oar not less than 8 feet in length, shall be provided for liferafts for 7 persons or more. For liferafts for 6 persons or less, a unit shall consist of 2 paddles not less than 5 feet in length.

(e) *Oil, storm.* One gallon of vegetable, fish, or animal oil shall be provided in a suitable metal container so constructed as to permit a controlled distribution of oil on the water, and so arranged that it can be attached to the sea anchor.

(f) *Painter.* Painters shall be of manila rope not less than 2¾ inches in circumference and of a length not less than 3 times the distance between the deck on which the liferafts are stowed and the light draft of the vessel.

(g) *Rowlocks.* A unit, consisting of 5 rowlocks attached to the liferaft by separate chains and ready for immediate use, together with proper rowlock sockets so arranged as to provide 4 rowing positions and 1 steering position with the liferaft floating either side up. Rowlocks and rowlock sockets are not required on liferafts for 6 persons or less.

(h) *Sea anchor.* The sea anchor shall be constructed of good quality canvas or other satisfactory material, and shall be not less than 2 feet in diameter.

(i) *Signals, distress.* (1) A unit, consisting of equipment as specified in subparagraph (2) or (3) of this paragraph. The service use of this equipment shall be limited to 3 years from date of manufacture, and replacement shall be made no later than the first inspection (biennial or reinspection) after the date of expiration.

(2) Twelve parachute red flare distress signals with an approved means of projecting them, all contained in a portable watertight container. Construction shall be in accordance with Subparts 160.024 and 160.028 or 160.036 of Subchapter Q (Specifications) of this chapter.

(3) Six approved hand red flare distress signals and 6 parachute red flare distress signals with an approved means of projecting them, all contained in a portable watertight container. Construction shall be in accordance with Subparts 160.021, 160.024 and 160.028 or

160.036 of Subchapter Q (Specifications) of this chapter.

(j) *Water light.* The water light shall be of an approved automatic electric type, constructed in accordance with Subpart 161.001 or Subpart 161.010 of Subchapter Q (Specifications) of this chapter. Water lights constructed in accordance with Subpart 161.001 shall not be installed after December 31, 1971, but may be retained in existing installations as long as they are maintained in good condition. The water light shall be attached to the liferaft or buoyant apparatus by a 12-thread manila or equivalent synthetic lanyard 3 fathoms in length.

[CGFR 65-50, 30 F.R. 16683, Dec. 30, 1965, as amended by CGFR 69-72, 34 F.R. 17481, Oct. 29, 1969]

§ 33.15-25 Portable radiotelephone apparatus—T/OC.

(a) All tankships on an international voyage shall be provided with a portable radio apparatus complying with the requirements of the Federal Communications Commission unless at least one lifeboat on each side of the vessel is fitted with a fixed radio installation. Such portable radio shall be kept in the radio room, chartroom, or other suitable location ready to be moved to one or other of the lifeboats in the event of an emergency; however, in tankships of 3,000 gross tons and over in which lifeboats are fitted amidships and aft, such equipment shall be kept in a suitable place in the vicinity of those lifeboats which are furthest removed from the ship's main transmitter.

§ 33.15-90 Lifeboat, liferaft and buoyant apparatus equipment on tank vessels contracted for prior to May 26, 1965—TB/ALL.

(a) Vessels contracted for prior to May 26, 1965, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 33.15-5 through 33.15-25 shall be complied with insofar as the number of items of equipment and the method of stowage of the equipment is concerned.

(2) Existing items of equipment previously approved, but not meeting the applicable specifications or requirements set forth in §§ 33.15-5 through 33.15-25 may be continued in service so long as they are maintained in a good condition to the satisfaction of the Officer in Charge, Marine Inspection.

(3) Lifeboats previously approved without automatic drain plugs shall have two plugs or caps attached to the lifeboat by separate chains.

(4) On tank vessels certificated for ocean or coastwise service, and contracted for prior to November 19, 1952, unless other approved means are provided to achieve the same purpose, three ½-inch diameter manila grablines shall be fitted extending from gunwale to gunwale under the keel to enable persons to cling or to climb upon the upturned lifeboat. The ends of each grabline shall be securely attached to the side benches or other permanent part of the lifeboat and each grabline shall be made up with figure eight knots spaced approximately 18 inches apart in order to provide hand grips. Means shall be provided for taking up any slack in the grablines.

(5) All new installations shall meet the applicable specifications or requirements of this part.

Subpart 33.20—Stowage of Lifeboats, Liferafts, and Buoyant Apparatus

§ 33.20-1 Davits and launching devices—TB/ALL.

(a) Tankships of 100 gross tons or more shall be equipped with separate davits for each lifeboat carried.

(b) Tankships of less than 100 gross tons and tank barges where lifeboats are carried shall provide means for the launching of such lifeboats by davits or crane or, where the freeboard is less than 6 feet when the vessel has no cargo aboard, by slide.

(c) On all tankships of 500 gross tons and over in ocean and coastwise service, the conditions set forth in subparagraphs (1) to (5), inclusive, of this paragraph shall apply. Tankships of 500 gross tons and over in Great Lakes service shall comply with the conditions set forth in subparagraphs (1) and (3) of this paragraph.

(1) An approved ladder, constructed in accordance with Subpart 160.017 of Subchapter Q (Specifications) of this chapter shall be provided at each set of davits to afford access to the lifeboats when waterborne.

(2) All davit installations shall have at least 2 lifelines fitted to a davit span. The lifelines shall be of such length as to reach the water at the lightest draft with the vessel listed 15 degrees either way.

(3) A tank vessel must have lights that illuminate the entire process of launching lifeboats and liferafts from their stowed position until they are waterborne. For detailed requirements of such illumination for tank vessels contracted for on or after November 19, 1955, see § 111.75–15(e) of this chapter.

(4) On tankships the construction or conversion of which was started on or after November 19, 1952, where applicable, means shall be provided outside the machinery space to prevent the discharge of water into the lifeboats while they are being lowered. This shall consist of baffles to deflect the water down the vessel's side, reach rods or other means to close the discharge openings, or a remote means for stopping the pumps.

(5) Lifeboats on tankships contracted for on or after May 26, 1965, shall be fitted with skates or other suitable means to facilitate launching against an adverse list of up to 15 degrees. However, skates may be dispensed with if, in the opinion of the Commandant, the arrangements are such as to insure that the lifeboats can be satisfactorily launched without skates. For vessels contracted for prior to May 26, 1965, the foregoing shall apply unless in the opinion of the Officer in Charge, Marine Inspection, it is unreasonable or impracticable or the arrangement or construction of the vessel make their use unnecessary.

(d) Lifeboats shall not be placed in the bows of tankships. They shall be stowed in such positions as to insure safe launching.

(e) Suitable access to the lifeboats shall be provided to enable the crew to prepare the lifeboats for launching.

(f) Means shall be provided for bringing the lifeboats against the ship's side and holding them there so that persons may be safely embarked.

(g) On a tankship on which inflatable liferafts have been substituted for lifeboats, a launching device for each lifeboat to be used for rescue purposes shall be installed. Radial type davits or other means may be used in sheltered waters if acceptable to the Officer in Charge, Marine Inspection.

[CGFR 65a–50, 30 F.R. 16683, Dec. 30, 1965, as amended by CGFR 72–45, 37 F.R. 5031, Mar. 9, 1972]

§ 33.20–3 Embarkation aids into inflatable liferafts—T/ALL.

(a) Where inflatable liferafts are substituted for lifeboats, unless freeboard at embarkation point is such that embarkation devices are not necessary, suitable arrangements shall be made for embarkation which shall include sufficient ladders or other suitable devices to facilitate embarkation into the inflatable liferafts when waterborne.

§ 33.20–5 Lifeboat davit falls—T/ALL.

All tankships over 1,000 gross tons shall be provided with covered tubs, boxes, or reels, in which to stow the running part of the lifeboat davit falls. Lifeboat falls shall not be painted.

§ 33.20–10 Lifeboats and liferafts kept clear for launching—TB/ALL.

The decks on which lifeboats or liferafts are carried shall be kept clear of freight or any other obstruction that would interfere with the immediate launching of the lifeboats or liferafts.

§ 33.20–15 Stowage of lifeboats and liferafts—TB/ALL.

(a) All the lifeboats and liferafts shall be stowed in such a way that they can be launched in the shortest possible time, and that, even under unfavorable conditions of list and trim from the point of view of the handling of the lifeboats and liferafts, it may be possible to embark in them as large a number of persons as possible.

(b) For tankships, arrangements shall be such that it may be possible to launch on either side of the vessel as large a number of lifeboats and liferafts as possible.

(c) Where practicable, lifeboat chocks shall be so fitted that the lifeboats they serve shall not require lifting before launching.

(d) Inflatable liferafts shall be stowed in such a manner that they will float free in the event of the vessel sinking. Stowage and launching arrangements shall be to the satisfaction of the Officer in Charge, Marine Inspection.

§ 33.20–20 Hydraulic releases—TB/ALL.

(a) Hydraulic releases approved under Subpart 160.062 of Subchapter Q (Specifications) of this chapter, and spring-tensioned gripes may be permitted in the installation of any liferaft, inflatable liferaft, or buoyant apparatus. On and after July 1, 1969, only hydraulic releases approved under Subpart 160.062 of this chapter may be used.

(b) Existing hydraulic releases may be returned to their manufacturers or to

repair facilities designated by their manufacturers for the purpose of determining compliance with Subpart 160.062 of this chapter. If such a release passes the periodic servicing and testing requirements in § 160.062–4(f) of this chapter and the reconditioning work (if any) is done to the satisfaction of the Officer in Charge, Marine Inspection, the complete body marking and inspection tagging required by § 160.062–5 of this chapter shall be placed on such a release indicating it is an approved item.

[CGFR 68–32, 33 F.R. 5713, Apr. 12, 1968]

Subpart 33.25—Markings, Care and Inspection

§ 33.25–5 Numbering and marking of lifeboats—TB/ALL.

(a) The number of each lifeboat shall be plainly marked or painted on each side of the bow in figures 3 inches high; and, where lifeboats are carried on both sides of a vessel, the odd-numbered boats shall be stowed on the starboard side, and the even-numbered boats on the port side; i.e., lifeboat No. 1 shall be forward on the starboard side, and lifeboat No. 3 next abaft lifeboat No. 1; lifeboat No. 2 shall be forward on the port side and lifeboat No. 4 next abaft lifeboat No. 2, etc.

(b) The cubical contents and number of persons allowed to be carried on each lifeboat shall be plainly marked or painted on each side of the bow in letters and numbers 1½ inches high. For vessels on an international voyage, the vessel's port of registry shall be added in similar type letters. In addition, the number of persons allowed shall be plainly marked or painted on the top of at least two of the thwarts in letters and numbers 3 inches high.

(c) Such letters and numbers shall be dark on a light ground or light on a dark ground.

(d) The top of thwarts, side benches and footings of lifeboats shall be painted or otherwise colored international orange. The area in way of the red mechanical disengaging gear control lever, from the keel to the side bench, shall be painted or otherwise colored white, to provide a contrasting background for the lever. This band of white should be approximately 12 inches wide depending on the internal arrangements of the lifeboat.

(e) Where mechanical disengaging apparatus is used, the control effecting the release of the lifeboat shall be painted bright red and shall have thereon in raised letters either the words—"Danger—Lever Drops Boat," or the words — "Danger — Lever Releases Hooks."

§ 33.25–10 Marking of liferafts—TB/ALL.

(a) There shall be stenciled in a conspicuous place on each rigid type liferaft the number of persons the liferaft can carry.

(b) There shall be stenciled in a conspicuous place in the immediate vicinity of each inflatable liferaft the following:

INFLATABLE LIFERAFT NO._____
_____PERSONS CAPACITY

These markings shall not be placed on the inflatable liferaft containers.

NOTE: See § 33.01–30(f), (3) and (4) and § 160.051–8 of this chapter for required markings on an inflatable liferaft and a liferaft's container.

[CGFR 65–50, 30 FR 16683, Dec. 30, 1965, as amended by CGD 75–040, 40 FR 58454, Dec. 17, 1975]

§ 33.25–15 Overhaul—TB/ALL.

(a) All lifeboats, rescue boats, and rigid type liferafts shall be stripped, cleaned and thoroughly overhauled at least once in every year.

(b) Tank vessels in ocean or coastwise service having a sufficient number of lifeboats on each side to accommodate all persons on board may care for their lifeboats at sea: *Provided,* That a number of lifeboats sufficient to accommodate all persons on board are fully equipped and ready for use at all times.

(c) The lifeboat davits and falls shall be overhauled at least once in every year.

(d) Inflatable liferafts shall be serviced at an approved servicing facility in accordance with the provisions of Subpart 160.051 of Subchapter Q (Specifications) of this chapter. Inflatable liferafts shall be serviced at an approved servicing facility every 12 months or not later than the next vessel inspection for certification provided the total time since date of last servicing does not exceed 15 months. The period for servicing is computed from date of last servicing. Except in emergencies no servicing should be done aboard vessels. If at any time external damage is found to the container or straps or if the seal is broken the Officer in Charge, Marine Inspection, shall be notified and the raft shall

be serviced by an approved servicing facility.

(e) A hydraulic release used in the installation of any liferaft, inflatable liferaft, or buoyant apparatus shall undergo the periodic servicing and testing required by Subpart 160.062 of Subchapter Q (Specifications) of this chapter every 12 months which may be extended to 15 months as determined by the date shown on its inspection tag. The springs of a spring-tensioned gripe used in such an installation shall be renewed when the accompanying hydraulic release is serviced and tested.

[CGFR 65–50, 30 F.R. 16683, Dec. 30, 1965, as amended by CGFR 68–32, 33 F.R. 5713, Apr. 12, 1968]

NOTE: After the raft has been satisfactorily serviced in the presence of a marine inspector at an approved servicing facility, the raft is repacked and sealed and the carrying case stamped "PASSED" together with the date, port, and the marine inspector's initials.

§ 33.25–20 Maintenance—TB/ALL.

(a) Every lifeboat, liferaft, or piece of buoyant apparatus together with its equipment shall be kept in every respect in good condition and ready for immediate use.

(b) The material that may support the platform of a liferaft or buoyant apparatus shall be examined to determine that its strength is maintained.

(c) Air tanks shall be examined to see that they are in good condition but pressure need not be applied unless the inspector so desires to assure himself as to their condition.

(d) Disengaging apparatus, blocks and falls, if used, shall be determined to be in good condition.

(e) Disengaging apparatus, if used, shall be shown on the inspector's report, and if the inspector is unable to identify it by name, he shall take the matter up with the Coast Guard District Commander in order that such apparatus may be traced for identification and approval record.

Subpart 33.30—Manning of Lifeboats and Liferafts

§ 33.30–1 Persons in charge of each lifeboat and liferaft—T/O.

A licensed deck officer, an able seaman, or a certificated lifeboatman shall be placed in charge of each lifeboat or liferaft. He shall have a list of its lifeboatmen and other members of its crew which shall be sufficient for her safe management, and shall see that the men placed under his orders are acquainted with their several duties and stations. A second in command shall also be appointed which person shall be either a licensed deck officer, an able seaman or a certificated lifeboatman.

§ 33.30–3 Person in charge of each lifeboat or liferaft—T/CLB.

(a) A licensed deck officer, an able seaman, or a certificated lifeboatman shall be placed in charge of each lifeboat or liferaft.

(b) The person in charge shall have a list of its lifeboatmen and other members of its crew, which shall be sufficient for her safe management, and shall see that the men placed under his orders are acquainted with their several duties and stations.

§ 33.30–5 Manning of lifeboats and liferafts—TB/OCLB.

(a) There shall be for each lifeboat or liferaft a number of lifeboatmen at least equal to that specified as follows, provided, that vessels required to carry sufficient lifeboats on each side to accommodate all persons on board need only carry the lifeboatmen required for the lifeboats on one side:

(1) If the lifeboat or liferaft carries 25 persons or less, the minimum number of certificated lifeboatmen shall be 1;

(2) If the lifeboat or liferaft carries 26 persons and less than 41 persons the minimum number of certificated lifeboatmen shall be 2;

(3) If the lifeboat or liferaft carries 41 persons and less than 61 persons the minimum number of certificated lifeboatmen shall be 3.

(b) The allocation of the certificated lifeboatmen to each lifeboat and liferaft remains within the discretion of the master, according to the circumstances.

§ 33.30–10 Motor-propelled lifeboat—TB/ALL.

(a) The master shall assign to each motor-propelled lifeboat a man capable of working the motor.

[CGFR 68–32, 33 F.R. 5713, Apr. 12, 1968]

§ 33.30–15 Lifeboat carrying a radiotelegraph and/or searchlight—TB/ALL.

(a) The master shall assign to each lifeboat carrying a radiotelegraph and/

or searchlight a man capable of operating such equipment.

[CGFR 68–32, 33 F.R. 5713, Apr. 12, 1968]

Subpart 33.35—Life Preservers

§ 33.35–1 Number and type required—TB/ALL.

(a) All tank vessel shall be provided with one approved life preserver for each person carried. An additional number of life preservers shall be provided for personnel on watch in the engineroom and pilothouse, and at the bow lookout.

(b) When children are carried, a suitable number of children's life preservers shall be provided.

(c) All life preservers on tankships of 500 gross tons and over on an international voyage shall be provided with a whistle of the ball-type, of corrosion-resistant construction, with a 3-foot lanyard attached, and in good working order. It shall be attached to the life preserver by the lanyard alone without hooks, snaps, clips, etc., and shall extend not less than 15 inches from the life preserver body. While stowed on the life preserver, the whistle lanyard shall be coiled and stopped-off.

(R.S. 4491, as amended; 46 U.S.C. 489) [CGFR 65–50, 30 F.R. 16683, Dec. 30, 1965, as amended by CGFR 66–33, 31 F.R. 15268, Dec. 6, 1966]

§ 33.35–5 Distribution and stowage—TB/ALL.

Life preservers shall be distributed throughout the cabins, staterooms, berths, and other places convenient for each person on such tank vessels. The stowage of the additional number of life preservers shall be such that they are readily accessible to personnel on watch in the engineroom and pilothouse, and at the bow lookout.

[CGFR 66–33, 31 F.R. 15268, Dec. 12, 1966]

§ 33.35–10 Shipboard inspections—TB/ALL.

At each inspection for certification, or oftener if deemed necessary, the life preserver shall be examined by an inspector to determine serviceability. When life preservers are found to be in accordance with the requirements, the inspector shall stamp them with the word "Passed," his initials, port, and date. Life preservers found not to be in a serviceable condition shall be removed from the vessel's equipment and, if beyond repair, shall be destroyed in the presence of the inspector.

§ 33.35–15 Requirements for life preservers—TB/ALL.

(a) The specifications regarding life preservers are in Subparts 160.001, 160.002, 160.005, 160.006, and 160.055 of Subchapter Q (Specifications) of this chapter.

(b) Cork and balsa wood life preservers, constructed in accordance with the applicable provisions of Subpart 160.003 or 160.004 and manufactured as approved life preservers prior to July 1, 1965, may be accepted as new or replacement equipment required by this subchapter if such life preservers are serviceable and in good condition to the satisfaction of the Officer in Charge, Marine Inspection: *Provided, however,* That such life preservers bearing basic Approval No. 160.003 or 160.004 shall not be considered as approved equipment meeting the requirements for those tankships on an international voyage, constructed or contracted for on or after May 26, 1965.

(c) All kapok and fibrous glass life preservers which do not have plastic-covered pad inserts, as required by Subparts 160.002 and 160.005 of Subchapter Q (Specifications) of this chapter, shall be removed from service.

Subpart 33.40—Ring Life Buoys and Water Lights

§ 33.40–1 Ring life buoys and water lights, general requirements—TB/ALL.

(a) All ring life buoys shall be of an approved type, constructed in accordance with Subpart 160.009 or 160.050 of Subchapter Q (Specifications) of this chapter.

(b) All water lights shall be of an approved automatic electric type, constructed in accordance with Subpart 161.001 or Subpart 161.010 of Subchapter Q (Specifications) of this chapter. Water lights constructed in accordance with Subpart 161.001 shall not be installed after December 31, 1971, but may be retained in existing installations as long as they are maintained in good condition.

(c) A self-activating smoke signal—

(1) Must be approved in accordance with Subpart 160.057 of this chapter; and

(2) May not be more than 3 years older than the stamped date of manufacture.

(R.S. 4491, as amended; 46 U.S.C. 489) [CGFR 65-50, 30 F.R. 16683, Dec. 30, 1965, as amended by CGFR 69-72, 34 F.R. 17481, Oct. 29, 1969; CGFR 72-45, 37 F.R. 5031, Mar. 9, 1972]

§ 33.40-5 Number required on tankships—T/ALL.

(a) The minimum number of approved 30-inch ring life buoys, and the minimum number of which shall have water lights attached, shall be in accordance with Table 33.40-5(a).

(b) One of the ring life buoys on each side of the vessel shall have secured to it a line at least 15 fathoms in length. On tankships on an international voyage, the line shall be of the buoyant type.

(c) On tankships on an international voyage, at least two of the ring life buoys with water lights attached as required by Table 33.40-5(a), shall also be provided with an approved self-activated smoke signal and shall be capable of quick release from the bridge.

(d) On tankships on an international voyage, the ring life buoys required by this section shall be orange in color.

[CGFR 65-50, 30 F.R. 16683, Dec. 30, 1965, as amended by CGFR 68-65, 33 F.R. 19985, Dec. 28, 1968]

TABLE 33.40-5(a)

Length of tankship (feet)	Ocean [1]		All services other than ocean [1]	
	Minimum number of ring life buoys	Minimum number of ring life buoys in column 2 which shall have water lights attached	Minimum number of ring life buoys	Minimum number of rings in column 4 which shall have water lights attached
Column 1	Column 2	Column 3	Column 4	Column 5
Under 100	3	2	2	1
100 and under 200	6	3	4	2
200 and under 300	8	6	6	2
300 and under 400	12	6	12	4
400 and under 600	18	9	18	9
600 and under 800	24	12	24	12
800 and over	30	15	30	15

[1] Vessels 500 gross tons and over on an international voyage, regardless of length, shall carry at least 8 lifebuoys; half of which shall have water lights attached.

§ 33.40-10 Number required on tank barges—B/ALL.

All tank barges regardless of size, shall have at least two approved 30 inch ring life buoys on board: *Provided*, That unmanned barges are exempt from this section.

§ 33.40-15 Distribution and security—TB/ALL.

(a) All ring life buoys shall be placed so as to be readily accessible to the persons on board, and their positions plainly indicated so as to be known to all persons concerned.

(b) The ring life buoys shall always be capable of being cast loose, and shall not be permanently secured in any way.

Subpart 33.45—Distress Signals

§ 33.45-1 Distress signals—T/ALL and B/OC.

On every manned tank vessel of 150 gross tons and over there shall be carried twelve approved hand red flare distress signals in a watertight container, or twelve approved hand combination flare and smoke distress signals in a watertight container. Service use shall be limited to a period of three years from date of manufacture, and replacement of out-dated items shall be made at the first port of arrival in the United States where such distress signals are available, except that replacement shall be made in all cases within twelve months after the date of expiration. Distress signals not bearing date of manufacture shall not be carried. For specifications for these signals, see Subparts 160.021 and 160.023 of Subchapter Q (Specifications) of this chapter.

(R.S. 4491, as amended; 46 U.S.C. 489)

§ 33.45-5 Parachute distress signals—T/OC.

In addition to the equipment required by § 33.45-1, all tankships of 500 gross tons and over shall be provided with

12 approved hand-held rocket-propelled parachute red flare distress signals, contained in a portable watertight container, constructed in accordance with Subpart 160.036 of Subchapter Q (Specifications) of this chapter. Service use of the distress signals shall be limited to a period of three years from date of manufacture, and replacement of out-dated items shall be made at the first port of arrival in the United States where such distress signals are available, except that replacement shall be made in all cases within 12 months after the date of expiration.

§ 33.45-10 Stowage of distress signals—TB/ALL.

All tank vessels required to carry pyrotechnic distress signals shall carry such signals in watertight containers near the pilothouse, on the navigator's bridge, or in some other suitable, readily accessible location other than in the lifeboats. In no case shall pyrotechnics be permitted to be carried in enclosed spaces, adjacent to cargo tanks or near sources of heat. Tank vessels required to carry a magazine chest may carry the distress signals in the magazine chest.

Subpart 33.50—Signaling Lamp

§ 33.50-1 Signaling lamp—T/O.

Tankships of over 150 gross tons engaged on international voyages shall be equipped with an efficient daylight signaling lamp. For detailed requirements see § 111.75-15(h) of Subchapter J (Electrical Engineering) of this chapter.

[CGFR 65-50, 30 FR 16683, Dec. 30, 1965, as amended by CGD 75-003, 40 FR 24901, June 11, 1975]

Subpart 33.55—Line-Throwing Appliances

§ 33.55-1 Line-throwing appliances required—T/OC.

(a) All ocean and coastwise tankships of 150 gross tons and over shall be equipped with an approved line-throwing appliance and equipment auxiliary thereto, as specified in this subpart.

(b) Tankships of 500 gross tons or more shall be equipped with an approved line-throwing appliance and equipment auxiliary thereto, of the impulse-projected rocket type, the requirements for which are set forth in Subpart 160.040 of Subchapter Q (Specifications) of this chapter. Lyle gun type line-throwing appliances in service on or before July 1, 1951, may be continued in use so long as in good and serviceable condition: *Provided,* That any replacements shall be made with a line-throwing appliance of the impulse-projected rocket type.

(c) Tankships of 150 gross tons and over and less than 500 gross tons shall be equipped with an approved line-throwing appliance and equipment auxiliary thereto, of the shoulder gun type or the impulse-projected rocket type, the requirements for which are set forth in Subparts 160.031 and 160.040, respectively, of Subchapter Q (Specifications) of this chapter. Lyle gun type line-throwing appliances in service on or before July 1, 1951, may be continued in use so long as in good and serviceable condition: *Provided,* That any replacements shall be made with a line-throwing appliance of the shoulder gun type or the impulse-projected rocket type.

(d) Service use of rockets shall be limited to a period of 4 years from date of manufacture, and replacement of out-dated items shall be made at the first port of arrival in the United States where such rockets are available, except that replacement shall be made in all cases within 12 months after the date of expiration.

(R.S. 4491, as amended; 46 U.S.C. 489)

§ 33.55-5 Accessibility—T/OC.

The line-throwing appliance and its equipment shall be kept always easily and immediately accessible and ready for use. No part of this equipment shall be used for any other purpose.

[CGFR 66-33, 31 F.R. 15268, Dec. 6, 1966]

§ 33.55-10 Equipment for line-throwing appliances—T/OC.

The equipment enumerated below is required to be carried with the various types of line-throwing appliances:

(a) The following equipment must be carried for each impulse-projected, rocket-type-line-throwing appliance required by this subpart. The equipment must be stowed with the appliance in a case or box, except for the service lines and the auxiliary line, which may be stowed in an accessible location nearby:

(1) Four rockets, two of which shall be of the buoyant type.

(2) Four service lines that—

(i) Are fabricated of the material specified in the approval of the appliance carried;

(ii) Have a length not less than that specified in the approval of the appliance carried;

(iii) Have a diameter from 7/32 to 9/32 inch;

(iv) Have a breaking strength of at least 500 pounds; and

(v) Are to be kept in a faking box or reel.

(3) Four prime ejector cartridges.

(4) One cleaning brush, one can of oil, and 12 wiping patches.

(5) One set of instructions from the manufacturer.

(6) One auxiliary line that is fabricated of—

(i) Manila and is at least 1,500 feet long and 3 inches or more in circumference; or

(ii) A synthetic material and is at least 1,500 feet long and is certified by the manufacturer to have a breaking strength of at least 9,000 pounds and inhibited to resist the effects of ultraviolet rays.

(b) The following equipment must be carried for each shoulder gun type, line-throwing appliance required by this subpart. The equipment must be stowed with the appliance in a box or case, except for the service lines and the auxiliary line which may be stowed in an accessible location nearby:

(1) Ten service projectiles.

(2) Twenty-five cartridges.

(3) Four service lines to be kept in faking boxes or on reels and to be fabricated of—

(i) Flax or cotton, not less than 400 feet long, 3/8 inch or more in circumference, and having a breaking strength of not less than 250 pounds; or

(ii) Very flexible woven or braided synthetic material, not less than 600 feet long 1/16 inch or more in diameter, having a breaking strength of not less than 140 pounds and inhibited to resist the effects of ultraviolet rays.

(4) One cleaning rod with brush, one can of oil, and 12 wiping patches.

(5) One set of instructions from the manufacturer.

(6) One auxiliary line that is made of either—

(i) Manila and is at least 500 feet long and 3 inches or more in circumference; or

(ii) A synthetic material and is at least 500 feet long, and is certified by the manufacturer to have a minimum breaking strength of 9,000 pounds and inhibited to resist the effects of ultraviolet rays.

(c) *Lyle gun type on existing tank vessels.* Six (6) service projectiles, 4 service lines (each 1,700 feet of 7/32-inch to 9/32-inch diameter flax or manila, having not less than 500 pounds breaking strength, in faking boxes or reels), 1 auxiliary line (1,500 feet of 3-inch circumference manila), 1 approved firing attachment (with accessories consisting of lanyard, wrench, washer to fit between barrel and shoulder of firing attachment, blank plug for screwing into gun when firing attachment is not in place, cartridge extractor, and 25 primers in watertight metal box), 18 bags (2½ ounces each) of black powder marked "One-half normal charge for Lyle gun, 2½ ounces black powder" in nonferrous metal screw top container, 25 paper wads, 1 ram rod, 1 wire brush, 1 can light petrolatum, 12 wiping patches, 1 tapered wooden plug for muzzle of gun when not in use, and 1 set of instructions furnished by the manufacturer of the gun, all in a suitable box or chest with the gun.

[CGFR 65-50, 30 F.R. 16683, Dec. 30, 1965, as amended by CGD 72-135R, 37 F.R. 16179, Aug. 11, 1972]

§ 33.55-15 Service recommendations—T/OC.

The following precautions and procedure are recommended for the use of line-throwing appliances and equipment:

(a) *Impulse-projected rocket type.* Follow the operating instructions and safety precautions furnished by the manufacturer.

(b) *Shoulder gun type.* Follow the operating instructions and safety precautions furnished by the manufacturer.

(c) *Lyle gun type on existing tank vessels.* (1) Service powder charge should be about 5 ounces of black powder, and the powder bags should be furnished to the vessel containing 2½ ounces of black powder and marked "one-half normal charge." Under extraordinary circumstances, 7½ ounces (three 2½-ounce bags) of black powder may be used.

(2) In making the line fast to the shank, pass it through the eye and take three or more half-hitches around its own part, leaving a loop of about 10 to 12 inches and taking the hitches about 6 inches apart. This will allow the line to slip slightly through the eye of the shank before the hitches fetch up, thus easing

the strain on the line at the loop during the initial acceleration.

(3) A considerable bight led over the side is recommended wherever possible, as it will tend to lessen the jerk on the line at initial acceleration.

(4) At least a fathom of the line from the shank should be thoroughly wet before using to prevent burning.

(5) The faking box or reel should always be faced in the direction of the line of fire and placed abreast of the gun and as close to ship's side as possible. It is not advisable to place the line too close to the muzzle of the gun, as the concussion may lift several layers or coils from the top, causing a snarl which in turn may cause the line to part.

(6) Care should be taken in placing the equipment to prevent fouling of the line in rigging, ridge ropes, etc., which have a tendency to rise or jump up when the gun is fired.

(7) Having made the gun and equipment ready for use, the following procedure in firing is recommended: select a place where the gun may recoil without striking anything, or where it may be securely lashed down. Note the position of the vessel to be relieved, and the direction and approximate force of the wind, and then place the gun in position, making allowance for the drift of the line. Place the line on the windward side of the gun and about 3 feet from it. Make the line fast in the eye of the shank and insert the powder charge, projectile, and primer. In loading, make sure that the projectile is seated against the wad.

(8) After using, the line should be thoroughly dried before rewinding or faking.

Subpart 33.60—Emergency position indicating radiobeacon (EPIRB) T/OC

§ 33.60–1 Emergency position indicating radiobeacon (EPIRB) T/OC.

(a) Each vessel in ocean and coastwise service must have an approved Class A emergency position indicating radiobeacon (EPIRB) that is—

(1) Operative;

(2) Stowed where it is readily accessible for testing and use; and

(3) Stowed in a manner so that it will float free if the vessel sinks.

(b) Compliance with this section is not required for a coastwise vessel—

(1) That carries a VHF radiotelephone that complies with the FCC requirements; and

(2) Whose Certificate of Inspection is endorsed for a route which does not extend more than 20 miles from a harbor of safe refuge.

[CGD 73–24R, 39 FR 10138, Mar. 18, 1974]

PART 34—FIREFIGHTING EQUIPMENT

Subpart 34.01—Application

Sec.
34.01–1 General—TB/ALL.
34.01–5 Equipment installed but not required—TB/ALL.
34.01–10 Protection for unusual arrangements or special products—TB/ALL.

Subpart 34.05—Firefighting Equipment, Where Required

34.05–1 Fire main system—T/ALL.
34.05–5 Fire-extinguishing systems—T/ALL.
34.05–10 Portable and semiportable extinguishers—TB/ALL.
34.05–15 Sand—TB/ALL.
34.05–20 Fire axes—T/ALL.

Subpart 34.10—Fire Main System, Details

34.10–1 Application—TB/ALL.
34.10–5 Fire pumps—T/ALL.
34.10–10 Fire station hydrants, hose and nozzles—T/ALL.
34.10–15 Piping—T/ALL.
34.10–90 Installations contracted for prior to May 26, 1965—T/ALL.

Subpart 34.13—Steam Smothering System, Details

34.13–1 Application—T/ALL.
34.13–90 Installations contracted for prior to January 1, 1962—T/ALL.

Subpart 34.15—Carbon Dioxide Extinguishing Systems, Details

34.15–1 Application—T/ALL.
34.15–5 Quantity, pipe sizes, and discharge rates—T/ALL.
34.15–10 Controls—T/ALL.
34.15–15 Piping—T/ALL.
34.15–20 Carbon dioxide storage—T/ALL.
34.15–25 Discharge outlets—T/ALL.
34.15–30 Alarms—T/ALL.
34.15–35 Enclosure openings—T/ALL.
34.15–40 Pressure relief—T/ALL.
34.15–90 Installations contracted for prior to January 1, 1962—T/ALL.

Subpart 34.17—Fixed Foam Extinguishing Systems, Details

34.17–1 Application—T/ALL.
34.17–5 Quantity of foam required—T/ALL.
34.17–10 Controls—T/ALL.
34.17–15 Piping—T/ALL.
34.17–20 Discharge outlets—T/ALL.
34.17–25 Additional protection required—T/ALL.

Sec.
34.17-90 Installations contracted for prior to January 1, 1962—T/ALL.

Subpart 34.20—Deck Foam System, Details

34.20-1 Application—T/ALL.
34.20-3 Cargo area definition—T/ALL.
34.20-5 Quantity of foam required—T/ALL.
34.20-10 Controls—T/ALL.
34.20-15 Piping—T/ALL.
34.20-20 Discharge outlets—T/ALL.
34.20-25 Foam monitor capacity—T/ALL.
34.20-90 Installations contracted for prior to January 1, 1970—T/ALL.

Subpart 34.25—Water Spray Extinguishing Systems, Details

34.25-1 Application—T/ALL.
34.25-5 Capacity and arrangement—T/ALL.
34.25-10 Controls—T/ALL.
34.25-15 Piping—T/ALL.
34.25-20 Spray nozzles—T/ALL.
34.25-90 Installations contracted for prior to January 1, 1964—T/ALL.

Subpart 34.50—Portable and Semiportable Extinguishers

34.50-1 Application—TB/ALL.
34.50-5 Classification—TB/ALL.
34.50-10 Location—TB/ALL.
34.50-15 Spare charges—TB/ALL.
34.50-90 Vessels contracted for prior to January 1, 1962—TB/ALL.

Subpart 34.55—Sand

34.55-1 Application—TB/ALL.
34.55-5 Amount required—TB/ALL.
34.55-10 Substitute—TB/ALL.

Subpart 34.60—Fire Axes

34.60-1 Application—T/ALL.
34.60-5 Number required—T/ALL.
34.60-10 Location—T/ALL.

AUTHORITY: The provisions of this Part 34 issued under R.S. 4405, as amended, 4417a, as amended, 4462, as amended, sec. 6(b)(1), 80 Stat. 938; 46 U.S.C. 375, 391a, 416, 49 U.S.C. 1655(b); 49 CFR 1.46(b) (35 F.R. 4959). Interpret or apply R.S. 4488, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 481, 50 U.S.C. 198; E.O. 11239, July 31, 1965, 30 F.R. 9671, 3 CFR, 1965 Supp.

SOURCE: The provisions of this Part 34 contained in CGFR 65-50, 30 F.R. 16694, Dec. 30, 1965, unless otherwise noted.

Subpart 34.01—Application

§ 34.01-1 General—TB/ALL.

(a) The provisions of this part shall apply to all tank vessels except as otherwise noted in this part.

§ 34.01-5 Equipment installed but not required—TB/ALL.

(a) Where firefighting equipment is not required, but is installed, the equipment and its installation shall be of an approved type.

§ 34.01-10 Protection for unusual arrangements or special products—TB/ALL.

(a) The provisions of this part contemplate fire protection for tank vessels of conventional design carrying the usual liquid petroleum products in internal tanks. Whenever unusual arrangements exist or special cargoes are carried upon which the vessel's normal firefighting equipment will be ineffective, additional suitable firefighting equipment of approved type shall be carried.

Subpart 34.05—Firefighting Equipment, Where Required

§ 34.05-1 Fire main system—T/ALL.

(a) Fire pumps, piping, hydrants, hose and nozzles shall be installed on all tankships.

(b) The arrangements and details of the fire main system shall be as set forth in Subpart 34.10.

§ 34.05-5 Fire-extinguishing systems—T/ALL.

(a) Approved fire-extinguishing systems shall be installed on all tankships in the following locations:

(1) *Dry cargo compartments.* A carbon dioxide or water spray system shall be installed for the protection of all dry cargo compartments. On vessels contracted for prior to January 1, 1962, a steam smothering system may be used in lieu thereof. In any case, where such dry cargo compartments are readily accessible by means of doors such spaces need be protected only by the fire main system.

(2) *Cargo tanks.* A deck foam system shall be installed for the protection of all cargo tank spaces. Where a deck foam system is installed, an approved inert gas, steam or other system may also be installed for purposes of fire prevention or inerting of cargo tanks. For vessels under 100 feet in length, the semiportable equippment required by footnote 1 of Table 34.10-5(a) will be considered as meeting the requirements of this subparagraph. On vessels contracted for

prior to January 1, 1962, a steam smothering inert gas, fixed foam or carbon dioxide system may be used in lieu of the deck foam system for the protection of the cargo tank spaces.

(3) *Lamp and paint lockers and similar spaces.* A carbon dioxide or water spray system shall be installed in all lamp and paint lockers, oil rooms, and similar spaces. Vessels contracted for prior to January 1, 1962, shall have a carbon dioxide, water spray, or steam smothering system. Vessels contracted for prior to November 19, 1952, shall have a carbon dioxide water spray, steam smothering, or foam system.

(4) *Pumprooms.* A carbon dioxide, inert gas, foam or water spray system shall be installed for the protection of all pumprooms. Vessels contracted for prior to January 1, 1962, and after July 1, 1951, shall have the same protection or a steam smothering system. For vessels contracted for prior to July 1, 1951, such systems are not required but if installed shall meet the requirements of this section.

(5) *Boilerrooms.* On tankships contracted for on or after November 19, 1952, a carbon dioxide or foam system shall be installed for the protection of all spaces containing oil fired boilers, either main or auxiliary, their fuel oil service pumps and/or such fuel oil units as the heaters, strainers, valves, manifolds, etc., that are subject to the discharge pressure of the fuel oil service pumps.

(6) *Machinery spaces.* A carbon dioxide system shall be installed for the protection of machinery spaces containing internal combustion propelling engines using fuel having a flashpoint of less than 110 degrees F.

(7) *Internal combustion installations.* Fire-extinguishing systems shall be provided for internal combustion installations in accordance with the following:

(i) If a fire-extinguishing system is installed to protect an internal combustion installation, the system shall be of the carbon dioxide type.

(ii) On vessels of 1,000 gross tons and over on an international voyage, the construction or conversion of which is contracted for on or after May 26, 1965, a fixed carbon dioxide system shall be installed in all spaces containing internal combustion or gas turbine main propulsion machinery, auxiliaries with an aggregate power of 1,000 b.h.p. or greater, or their fuel oil units, including purifiers, valves, and manifolds.

(iii) On vessels of 1,000 gross tons and over, the construction, conversion or automation of which is contracted for on or after January 1, 1968, a fixed carbon dioxide system shall be installed in all spaces containing internal combustion or gas turbine main propulsion machinery, auxiliaries with an aggregate power of 1,000 b.h.p. or greater, or their fuel oil units, including purifiers, valves and manifolds.

(8) *Enclosed ventilating system.* On tankships contracted for on or after January 1, 1962, where an enclosed ventilating system is installed for electric propulsion motors or generators, a carbon dioxide extinguishing system shall be installed in such system.

(b) The arrangements and details of the fire-extinguishing systems shall be as set forth in Subparts 34.10 through 34.20.

[CGFR 65–50, 30 F.R. 16694, Dec. 30, 1965, as amended by CGFR 67–90, 33 F.R. 1015, Jan. 26, 1968]

§ 34.05–10 Portable and semiportable extinguishers—TB/ALL.

(a) All portable and semiportable extinguishers on board tank vessels shall be of an approved type.

(b) The type, size, location and arrangement of portable and semiportable extinguishers shall be as set forth in Subpart 34.50.

[CGFR 65–50, 30 F.R. 16694, Dec. 30, 1965, as amended by CGFR 70–143, 35 F.R. 19905, Dec. 30, 1970]

§ 34.05–15 Sand—TB/ALL.

(a) All spaces containing oil fired boilers shall have available in such spaces sand or an acceptable substitute.

(b) The arrangement and details of the carriage of the sand shall be as set forth in Subpart 34.55.

§ 34.05–20 Fire axes—T/ALL.

(a) Fire axes shall be provided on all tankships.

(b) The location and arrangement of fire axes shall be as set forth in Subpart 34.60.

Subpart 34.10—Fire Main System, Details

§ 34.10–1 Application—TB/ALL.

(a) On all tankships the provisions of this subpart, with the exception of § 34.10–90, shall apply to all fire main installations contracted for on or after May 26, 1965. Installations contracted

for prior to May 26, 1965, shall meet the requirements of § 34.10–90.

(b) If a fire main system is installed on a tank barge, the system shall meet the intent of this subpart insofar as reasonable and practicable.

§ 34.10–5 Fire pumps—T/ALL.

(a) Tankships shall be equipped with independently driven fire pumps in accordance with Table 34.10–5(a).

TABLE 34.10–5(a)—FIRE PUMPS

Size vessel, L.O.A.		Minimum number of pumps	Powerful streams of water per pump	Minimum hydrant and hose size	
Over—	Not over—			Exterior stations	Interior stations
(*Feet*)	(*Feet*)			(*Inches*)	(*Inches*)
	100	[1]			
100	250	[2] 1	[3] 2	1½	1½
250	400	2	[3] 2	1½	1½
400	650	2	[3] 2	[4] 2½	1½
650		2	[3] 3	[4] 2½	1½

[1] Vessels of 65 feet and not over 100 feet shall be equipped with 2 B–V extinguishers. (Refer to Table 34.50–5(c).) Vessels under 65 feet shall be equipped with 1 B–V extinguisher. (Refer to Table 34.50–5(c).)

[2] Vessels of 1,000 gross tons and over on an international voyage shall have at least 2 fire pumps.

[3] From hydrants having greatest pressure drop between fire-pump(s) and nozzles.

[4] Where 2½-inch hydrant size is required, two 1½-inch outlets may be substituted therefor with two 1½-inch hoses.

(b) Each pump shall be capable of delivering simultaneously the number of streams of water required by Table 34.10–5(a) from the outlets having the greatest pressure drop between fire pump(s) and nozzles at a Pitot tube pressure of approximately 75 p.s.i. Where 1½-inch hose is permitted in lieu of 2½-inch hose by footnote 3 of Table 34.10–5(a), the pump capacity shall be determined on the basis that both hoses are used.

(c) On tankships of 1,000 gross tons and over on an international voyage, each required fire pump, while delivering water through the fire main system at a pressure corresponding to that required by § 34.10–15(e), shall have a minimum capacity of at least two-thirds of that required for an independent bilge pump if no length correction is taken for the cargo tank space. However, in no case shall the capacity of each fire pump be less than that otherwise required by this section.

(d) Fire pumps shall be fitted on the discharge side with relief valves set to relieve at 25 p.s.i. in excess of the pressure necessary to maintain the requirements of paragraph (b) of this section.

(e) Fire pumps shall be fitted with a pressure gage on the discharge side of the pumps.

(f) Fire pumps may be used for other purposes provided at least one of the required pumps is kept available for use on the fire system at all times. Unless specifically approved by the Commandant no branch lines shall be connected to the fire mains for other than fire, deck wash or tank cleaning purposes. Other discharge lines shall lead from a discharge manifold near the fire pump. In no case shall a pump having connection to an oil line be used as a fire pump.

(g) On all vessels where two fire pumps are required, they shall be located in separate spaces, and the arrangement of pumps, sea connections, and sources of power shall be such as to insure that a fire in any one space will not put all of the fire pumps out of operation. However, where it is shown to the satisfaction of the Commandant that it is unreasonable or impracticable to meet this requirement due to the size, or arrangement of the vessel, or for other reasons, the installation of a total flooding carbon dioxide system may be accepted as an alternate method of extinguishing any fire which would affect the powering and operation of at least one of the required fire pumps.

§ 34.10–10 Fire station hydrants, hose and nozzles—T/ALL.

(a) The size of fire station hydrants and hose required shall be as noted in Table 34.10–5(a).

(b) Fire hydrants shall be of sufficient number and so located that any part of living quarters, storerooms, working spaces and weather decks accessible to crew while at sea may be reached with two effective spray patterns of water, one of which shall be from a single 50-foot length of hose. In main machinery spaces all portions of such spaces shall be capable of being reached by at least 2 effective spray patterns of water, each of which shall be from a single 50-foot length of hose from separate outlets.

(c) The outlets at the fire station hydrant shall be limited to any position from the horizontal to the vertical pointing downward so that hose will lead horizontally or downward to minimize possibility of kinking.

(d) All fire station hydrants shall be equipped with spanners suitable for use on the hose at that station.

(e) Each fire station hydrant shall be provided with at least one length of hose with approved combination nozzle attached. A suitable hose rack or other device shall be provided. Hose racks on weather decks shall be located so as to afford protection from heavy seas. The hose shall be stored in the open or so as to be readily visible.

(f) The pipes and fire station hydrants shall be so placed that the fire hose may be easily coupled to them. All hydrants shall be so located as to be readily accessible. If deck cargo is carried, it shall not interfere with access to the fire station hydrants, and the pipes shall be arranged as far as practicable to avoid risk of damage by such cargo.

(g) Each fire station hydrant or "y" branch shall be equipped with a valve so that the hose may be removed while there is pressure on the fire main.

(h) Fire station hydrant connections shall be brass, bronze, or other equivalent metal. National Standard fire hose coupling threads shall be used for the 1½-inch and 2½-inch sizes, i.e., 9 threads per inch for 1½-inch hose and 7½ threads per inch for 2½-inch hose.

(i) Fire hose shall be 50 feet in length except on weather decks the hose shall be increased in length if necessary to enable a single length to be goose-necked over each side of the vessel. If two fire mains are installed on the weather decks, the length of hose shall be such that it may be goose-necked over the side from the nearest fire main.

(j) Fire hose when part of the fire equipment shall not be used for any other purpose than fire extinguishing, fire drills, and testing.

(k) Fire hose shall be connected to outlets at all times. However, in heavy weather on open decks where no protection is afforded the hose may be removed temporarily from the hydrant and stowed in an accessible location nearby. While in port, fire hose in way of cargo area shall be kept ready for immediate use. The fire hose may be temporarily removed when it will interfere with the handling of cargo.

(l) Each section of fire hose used after January 1, 1980 must be lined commercial fire hose that conforms to Underwriters' Laboratories, Inc. Standard 19 or Federal Specification ZZ–H–451E. Hose that bears the label of Underwriters' Laboratories, Inc. as lined fire hose is accepted as conforming to this requirement. Each section of replacement fire hose or any section of new fire hose placed aboard a vessel after January 1, 1977 must also conform to the specification required by this paragraph.

(m) Coupling shall conform to the requirements of paragraph (h) of this section.

(n) All fire hose, including those in the engine and boiler spaces, shall be fitted with approved combination nozzles, each having a solid stream orifice of not less than ⅞-inch diameter for the 2½-inch size and not less than ⅝-inch diameter for the 1½-inch size. The nozzle shall be capable of producing a solid stream or a high velocity spray and of being shut off.

(o) There shall be approved low velocity spray applicators conveniently located for use as required by Table 34.10–10(o). Each shall have the proper connection for mating its adjacent combination nozzle.

TABLE 34.10-10(o)—LOW VELOCITY SPRAY APPLICATOR

Location	Number	Length
Living spaces	1	4 or 6 feet.
Weather decks	4	10 or 12 feet.
Machinery spaces	2	4 or 6 feet.

[CGFR 65–50, 30 FR 16694, Dec. 30, 1965, as amended by CGD 74–60, 41 FR 43151, Sept. 30, 1976]

§ 34.10–15 Piping—T/ALL.

(a) All piping, valves and fittings shall meet the applicable requirements of Subchapter F (Marine Engineering) of this chapter.

(b) An adequate number of valves shall be installed to isolate damaged sections of piping.

(c) All distribution valves shall be marked as required by § 35.40–10 of this subchapter.

(d) Tankships of 1,000 gross tons and over on an international voyage shall be provided with at least one international shore connection. Facilities shall be available enabling such a connection to be used on either side of the vessel. The international shore connection shall be in accordance with specification Subpart 162.034 of Subchapter Q (Specifications) of this chapter.

(e) For tankships on an international voyage, the diameter of the fire main shall be sufficient for the effective distribution of the maximum required discharge from two fire pumps operating simultaneously. This requirement is in addition to § 34.10–5(b). The discharge of this quantity of water through hoses and nozzles at a sufficient number of adjacent hydrants shall be at a minimum Pitot tube pressure of approximately 50 pounds per square inch.

§ 34.10–90 Installations contracted for prior to May 26, 1965—T/ALL.

(a) Installations contracted for prior to January 1, 1962, shall meet the following requirements:

(1) Existing arrangements, materials and facilities previously approved shall be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) Except as further modified by this paragraph, the details of the systems shall be in general agreement with §§ 34.10–5 through 34.10–15 insofar as is reasonable and practicable.

(3) Tankships of less than 500 gross tons shall be equipped with an efficient hand pump capable of delivering 50 gallons per minute or a power-driven pump of equivalent capacity. However, on tankships of 20 gross tons or under where it is impracticable to install a hand or power-operated fire pump, or on tankships with only one man in the crew, at least one additional B–II fire extinguisher may be accepted in lieu of a fire pump.

(4) Tankships of 500 gross tons and over but not over 1,000 gross tons shall be provided with one independently power-driven pump.

(5) Tankships of over 1,000 gross tons shall be provided with two independently power-driven pumps.

(6) On tankships of 500 gross tons and over, the capacity of the combined fire pump installation shall be one-fifth gallon per minute per gross ton of the ship. The maximum total fire pump capacity required for any tankship shall be 800 gallons per minute.

(7) Fire pumps on tankships of 500 gross tons and over shall be capable of delivering two powerful jets of water simultaneously from the highest outlets on the fire main at a Pitot tube pressure of approximately 50 pounds per square inch through nozzles, each having an orifice of not less than ⅞-inch diameter where the internal diameter of the hose exceeds 1½ inches, and not less than ⅝-inch diameter where the internal diameter of the hose does not exceed 1½ inches.

(8) On oil-burning tankships, provided with two fire pumps, where the engine and fire rooms are not entirely separated by iron or steel bulkheads, or if fuel can drain from fireroom bilges into the engineroom, one of the fire pumps shall be located in an accessible space separate from the machinery compartment. On all tankships contracted for on or after November 19, 1952, the requirements of paragraph (f) of § 34.10–5 shall be met.

(9) Fire hydrant outlets shall have a minimum diameter of 1½ inches.

(10) On all tankships of 1,000 gross tons and over contracted for on or after July 1, 1951, but prior to January 1, 1962, the nozzles used on at least 2 hose lines in the boiler and machinery spaces shall be approved combination nozzles. In addition, an approved applicator equipped with a low velocity water spray tip, which is capable of being attached directly to the nozzle or the hose, shall be provided for each nozzle. Unless a self-cleaning strainer is contained within the nozzle itself and within the applicator where the applicator is attached directly to the hose, there shall be a self-cleaning strainer attached to the fire hydrant either directly or by means of a short length of hose, except where high and low velocity spray heads have large orifice openings.

(11) Fire hose lines in boiler and machinery spaces of vessels of 1,000 gross tons and over, contracted for prior to July 1, 1951, shall be provided with at least 2 suitable nozzles of an approved type which are capable of effectively extinguishing oil fires. Approved combination nozzles together with the applicator and low velocity spray head, will be acceptable for this purpose. The self-cleaning strainer may be fitted, but will not be required.

(12) At least 25 percent of the hydrants, exclusive of those in the boiler and machinery spaces, shall be fitted with approved combination nozzles, applicators with low velocity spray heads, and self-cleaning strainers as described

in subparagraph (10) of this paragraph. Such nozzles shall be strategically located throughout the tankship.

(13) Where approved combination nozzles are used with fire lines other than required in subparagraphs (10) through (12) of this paragraph, the applicators, low velocity spray heads, and self-cleaning strainers may be fitted, but will not be required.

(14) Vessels contracted for on or after July 1, 1954, shall meet the requirements of § 34.10–10(h).

(b) Installations contracted for on or after January 1, 1962, but prior to May 26, 1965, shall meet the following requirements:

(1) Existing arrangements, materials, and facilities previously approved shall be considered satisfactory as long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs, and alterations may be made to the same standards as the original installation.

(2) The details of the systems shall be in general agreement with §§ 34.10–5 through 34.10–15 insofar as is reasonable and practicable.

Subpart 34.13—Steam Smothering System, Details

§ 34.13–1 Application—T/ALL.

(a) In accordance with § 34.05–5, steam smothering systems are not permitted on vessels contracted for on or after January 1, 1962, except as provided for under § 34.05–5(a)(2).

(b) Where a steam smothering system is already installed on a vessel contracted for prior to that date, the provisions of this subpart shall apply.

(c) This does not preclude the introduction of steam into such confined spaces as boiler casings or into tanks for steaming out purposes. Such installations are not to be considered as part of any required fire extinguishing system.

§ 34.13–90 Installations contracted for prior to January 1, 1962—T/ALL.

(a) Installations contracted for prior to January 1, 1962, shall meet the following requirements:

(1) Existing arrangements, materials and facilities previously approved will be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standard as the original installation.

(2) Steam shall be available from the main or auxiliary boilers, or from a shore source. The capacity of the steam supply shall be at least equal to one pound of steam per hour for each 1 cubic feet of the largest cargo compartment in the case of installations contracted for on or after November 19, 1952, and one pound of steam per hour for each 50 cubic feet of the largest cargo compartment in the case of installations contracted for prior to November 19, 1952.

(3) Where reasonable and practicable, the steam pressure shall be at least 100 p.s.i.

(4) The piping system shall meet the general requirements of this subparagraph insofar as is reasonable and practicable.

(i) All piping, valves, and fittings shall meet the applicable requirements of subchapter F (Marine Engineering) of this chapter. All valves and manifolds shall be marked as required by § 35.40–10.

(ii) The supply may be taken from any steam line having adequate capacity.

(iii) The distribution line to each compartment shall be fitted with a shut-off valve.

(iv) Provisions shall be made for draining the manifold and distribution lines to prevent them from freezing.

(v) The minimum size and number of branches to the various spaces shall be as given in Table 34.13–90(a)(4)(v). The distribution piping from the manifold to the branch lines shall have an area approximately equal to the combined areas of the branch lines served.

TABLE 34.13–90(a)(4)(v)

Volume of space in cubic feet		Number of branches to space	Pipe size of each branch, inches
Over—	Not over—		
----------	500	1	¾
500	5,000	1	1
5,000	15,000	1	1¼
15,000	and over	1	1½

(vi) The steam supply line to any distribution manifold shall be of sufficient size to supply all the branch lines to the largest compartment.

(vii) All controls and valves for the operation of the system shall be outside the space protected and shall not be located in any space that might be cut off or made inaccessible in the event of fire in any places protected.

(5) For the purpose of this paragraph, the term "largest cargo compartment" shall be considered as the cargo space, either liquid or dry, having the greatest volumetric measurement. In the case of liquid cargo tanks, the gross volume of the largest tank and all adjoining tanks shall be used for installations contracted for on or after November 19, 1952; for installations contracted for prior to November 19, 1952, the gross volume of the individual tanks shall be used. In the case of dry-cargo compartments, the gross volume shall be taken between adjacent watertight or firescreen bulkheads, and from tank top or lowest deck to the deckhead of the uppermost deck on which cargo may be carried, and if a trunk extends beyond such deckhead, the volume of the trunk shall be included.

(6) The valves to the tanks shall be left open at all times so that, in case of fire, it will be necessary only to open the master valve to insure a flow of steam into each tank, after which, the valves to the tanks which are not on fire may be closed; however, where the opening of such branch lines may cause contamination of cargo or cause the passage of gases or vapors between tanks or compartments, they may be kept closed.

(7) Piping for dry-cargo spaces, pump rooms, paint and lamp lockers, and similar spaces shall be run independent of the extinguishing system for the bulk cargo tanks. If this should be impracticable, valves shall be installed between the main bulk tank extinguishing system and other compartments served, such valves to be marked: "This valve to be kept closed except in case of fire."

(8) The master valve control shall be located above the uppermost complete deck having permanent means of closing all openings in the weather portions of the deck.

(9) Control valves for pumproom extinguishment systems shall be located adjacent to the pumproom exit.

(10) In pumprooms the outlets shall terminate just above the floor plates.

Subpart 34.15—Carbon Dioxide Extinguishing Systems, Details

§ 34.15-1 Application—T/ALL.

(a) Where a carbon dioxide extinguishing system is installed, the provisions of this subpart, with the exception of § 34.15-90, shall apply to all installations contracted for on or after January 1, 1962. Installations contracted for prior to January 1, 1962, shall meet the requirements of § 34.15-90.

(b) The requirements of this subpart are based on a "high pressure system," i.e., one in which the carbon dioxide is stored in liquid form at atmospheric temperature. Details for "low pressure systems," i.e., those in which the carbon dioxide is stored in liquid form at a continuously controlled low temperature, may be specifically approved by the Commandant where it is demonstrated that a comparable degree of safety and fire extinguishing ability is achieved.

§ 34.15-5 Quantity, pipe sizes, and discharge rates—T/ALL.

(a) *General.* (1) The amount of carbon dioxide required for each space shall be as determined by paragraphs (b) through (e) of this section.

(b) *Total available supply.* (1) A separate supply of carbon dioxide need not be provided for each space protected. The total available supply shall be at least sufficient for the space requiring the greatest amount.

(c) *Dry cargo spaces.* (1) The number of pounds of carbon dioxide required for each space shall be equal to the gross volume of the space in cubic feet divided by 30.

(2) Although separate piping shall be led to each cargo hold and 'tween deck, for the purpose of determining the amount of carbon dioxide required, a cargo compartment will be considered as the space between watertight or firescreen bulkheads and from the tank top or lowest deck to the deck head of the uppermost space on which cargo may be carried. If a trunk extends beyond such deck, the trunk volume shall be included. Tonnage openings shall be considered as sealed for this purpose.

(3) Branch lines to the various cargo holds and 'tween decks shall not be less than ¾-inch standard pipe size.

(4) No specific discharge rate need be applied to such systems.

(d) *Enclosed ventilation systems for rotating electrical propulsion equipment.* (1) The number of pounds of carbon dioxide required for the initial charge shall be equal to the gross volume of the system divided by 10 for systems having a volume of less than 2,000 cubic feet, and divided by 12 for systems having a volume of 2,000 cubic feet or more.

(2) The piping for the initial charge shall be in accordance with Table 34.15-5(e)(4), and the discharge of the required amount shall be completed within 2 minutes.

(3) In addition to the above there shall be sufficient carbon dioxide available to permit delayed discharges of such quantity as to maintain at least a 25 percent concentration until the equipment can be stopped. If the initial discharge is such as to achieve this concentration until the equipment is stopped, no delayed discharge need be provided.

(4) The piping for the delayed discharge shall not be less than ½-inch standard pipe, and no specific discharge rate need be applied to such systems. On small systems, this pipe may be incorporated with the initial discharge piping.

(e) *Machinery spaces, pumprooms, paint lockers, and similar spaces.* (1) Except as provided in subparagraph (4) of this paragraph, the number of pounds of carbon dioxide required for each space shall be equal to the gross volume of the space divided by the appropriate factor noted in Table 34.15-5(e)(1). If fuel can drain from the compartment being protected to an adjacent compartment, or if the compartments are not entirely separate, the requirements for both compartments shall be used to determine the amount of carbon dioxide to be provided. The carbon dioxide shall be arranged to discharge into both such compartments simultaneously.

TABLE 34.15-5(e)(1)

Gross volume of compartment, cubic feet		Factor
Over—	Not Over—	
----------	500	15
500	1,600	16
1,600	4,500	18
4,500	50,000	20
50,000	----------	22

(2) For the purpose of the above requirement of this paragraph, the volume of a machinery space shall be taken as exclusive of the normal machinery casing unless the boiler, internal combustion propelling machinery, or fuel oil installations subject to the discharge pressure of the fuel oil service pump extend into such space, in which case the volume shall be taken to the top of the casing or the next material reduction in casing area, whichever is lower. The terms "normal machinery casing" and "material reduction in casing area" shall be defined as follows:

(i) By "normal machinery casing" shall be meant a casing the area of which is not more than 40 percent of the maximum area of the machinery space.

(ii) By "material reduction in casing area" shall be meant a reduction to at least 40 percent of the casing area.

(3) For the purpose of the above requirements of this paragraph, the volume of a pumproom shall include the pumproom and all associated trunks up to the deck at which access from the weather is provided.

(4) For tankships on an international voyage contracted for on or after May 26, 1965, the amount of carbon dioxide required for a space containing propulsion boilers or internal combustion propulsion machinery shall be as given by subparagraphs (1) and (2) of this paragraph or by dividing the entire volume, including the casing, by a factor of 25, whichever is the larger.

(5) Branch lines in the various spaces shall be noted in Table 34.15-5(e)(5).

TABLE 34.15-5(e)(5)

Maximum quantity of carbon dioxide required, pounds	Minimum pipe size, inches	Maximum quantity of carbon dioxide required, pounds	Minimum pipe size, inches
100	½	2,500	2½
225	¾	4,450	3
300	1	7,100	3½
600	1¼	10,450	4
1,000	1½	15,000	4½
2,450	2	----------	----------

(6) Distribution piping within the space shall be proportioned from the supply line to give proper distribution to the outlets without throttling.

(7) The number, type and location of discharge outlets shall be such as to give a uniform distribution throughout the space.

(8) The total area of all discharge outlets shall not exceed 85 percent nor be less than 35 percent of the nominal cylinde

outlet area or the area of the supply pipe, whichever is smaller. The nominal cylinder outlet area in square inches shall be determined by multiplying the factor 0.0022 by the number of pounds of carbon dioxide required, except that in no case shall this outlet area be less than 0.110 square inches.

(9) The discharge of at least 85 percent of the required amount of carbon dioxide shall be complete within 2 minutes.

§ 34.15–10 Controls—T/ALL.

(a) Except as noted in § 34.15–20(b), all controls and valves for the operation of the system shall be outside the space protected, and shall not be located in any space that might be cut off or made inaccessible in the event of fire in any of the spaces protected.

(b) If the same cylinders are used to protect more than one space, a manifold with normally closed stop valves shall be used to direct the carbon dioxide into the proper space. If cylinders are used to protect only one space, a normally closed stop valve shall be installed between the cylinders and the space except for systems of the type indicated in § 34.15–5(e) which contain not more than 300 pounds of carbon dioxide.

(c) Distribution piping to the dry cargo spaces shall be controlled from not more than two stations. One of the stations controlling the system for the main machinery space shall be located as convenient as practicable to one of the main escapes from the space. All control stations and the individual valves and controls shall be marked as required by § 35.40–10 of the subchapter.

(d) Systems of the type indicated in § 34.15–5(e) shall be actuated at each station by one control operating the valve to the space and a separate control releasing at least the required amount of carbon dioxide. These two controls shall be located in a box or other enclosure clearly identified for the particular space. Systems installed without a stop valve shall be operated by one control releasing at least the required amount of carbon dioxide.

(e) Where provisions are made for the simultaneous release of a given amount of carbon dioxide by operation of a remote control, provisions shall also be made for manual control at the cylinders. Where gas pressure from pilot cylinders is used as a means for releasing the remaining cylinders, not less than two pilot cylinders shall be used for systems consisting of more than two cylinders. Each of the pilot cylinders shall be capable of manual control at the cylinder, but the remaining cylinders need not be capable of individual manual control.

(f) Systems of the type indicated in § 34.15–5(e), which are of more than 300 pounds of carbon dioxide shall be fitted with an approved delayed discharge so arranged that the alarm will be sounded for at least 20 seconds before the carbon dioxide is released into the space. Such systems of not more than 300 pounds of carbon dioxide shall also have a similar delayed discharge, except for spaces which have a suitable horizontal escape.

(g) All distribution valves and controls shall be of an approved type. All controls shall be suitably protected.

(h) Complete but simple instructions for the operation of the systems must be located in a conspicuous place at or near all pull boxes, stop valve controls and in the CO_2 cylinder storage room. On systems in which the CO_2 cylinders are not within the protected space, these instructions must also include a schematic diagram of the system and instructions detailing alternate methods of discharging the system should the manual release or stop valve controls fail to operate. Each control valve to branch lines must be marked to indicate the related space served.

(i) If the space or enclosure containing the carbon dioxide supply or controls is to be locked, a key to the space or enclosure shall be in a break-glass-type box conspicuously located adjacent to the opening.

[CGFR 65–50, 30 FR 16694, Dec. 30, 1965, as amended by CGD 74–100R, 40 FR 6208, Feb. 10, 1975]

§ 34.15–15 Piping—T/ALL.

(a) The piping, valves, and fittings shall have a bursting pressure of not less than 6,000 pounds p.s.i.

(b) All piping, in nominal sizes not over ¾-inch shall be at least Schedule 40 (standard weight) and in nominal sizes over ¾-inch, shall be at least Schedule 80 (extra heavy).

(c) All piping, valves, and fittings of ferrous materials shall be protected inside and outside against corrosion unless specifically approved otherwise by the Commandant.

(d) A pressure relief valve or equivalent set to relieve between 2,400 and 2,800 pounds p.s.i. shall be installed in the

distributing manifold or such other location as to protect the piping in the event that all branch line shutoff valves are closed.

(e) All deadend lines shall extent at least 2 inches beyond the last orifice and shall be closed with cap or plug.

(f) All piping, valves, and fittings shall be securely supported, and where necessary, protected against injury.

(g) Drains and dirt traps shall be fitted where necessary to prevent the accumulation of dirt or moisture. Drains and dirt traps shall be located in accessible locations where possible.

(h) Piping shall be used for no other purpose except that it may be incorporated with the fire-detecting system.

(i) Piping passing through living quarters shall not be fitted with drains or other openings within such spaces.

(j) Installation test requirements are:

(1) Upon completion of the piping installation, and before the cylinders are connected, a pressure test shall be applied as set forth in this paragraph. Only carbon dioxide or other inert gas shall be used for this test.

(2) The piping from the cylinders to the stop valves in the manifold shall be subjected to a pressure of 1,000 pounds p.s.i. With no additional gas being introduced to the system, it shall be demonstrated that the leakage of the system is such as not to permit a pressure drop of more than 150 pounds per square inch per minute for 2-minute period.

(3) The individual branch lines to the various spaces protected shall be subjected to a test similar to that described in the preceding subparagraph with the exception that the pressure used shall be 600 pounds p.s.i. in lieu of 1,000 pounds. p.s.i. For the purpose of this test, the distribution piping shall be capped within the space protected at the first joint ahead of the nozzles.

(4) In lieu of the tests prescribed in the preceding subparagraphs in this paragraph, small independent systems protecting spaces such as emergency generator rooms, lamp lockers, etc., may be tested by blowing out the piping with the air at a pressure of at least 100 pounds p.s.i.

§ 34.15-20 Carbon dioxide storage—T/ALL.

(a) Except as provided in paragraph (b) of this section, the cylinders shall be located outside the spaces protected, and shall not be located in any space that might be cut off or made inaccessible in the event of a fire in any of the space protected.

(b) Systems of the type indicated i § 34.15-5(e), consisting of not more tha 300 pounds of carbon dioxide, may hav the cylinders located within the spac protected. If the cylinder stowage i within the space protected, the syster shall be arranged in an approved manne to be automatically operated by a hea actuator within the space in addition t the regular remote and local controls.

(c) The space containing the cylin ders shall be properly ventilated and de signed to preclude an anticipated am bient temperature in excess of 130 de grees F.

(d) Cylinders shall be securely fas tened and supported, and where neces sary, protected against injury.

(e) Cylinders shall be so mounted a to be readily accessible and capable c easy removal for recharging and inspec tion. Provisions shall be available fo weighing the cylinders.

(f) Where subject to moisture, cylin ders shall be so installed as to provid a space of at least 2 inches between th flooring and the bottom of the cylinder

(g) Cylinders shall be mounted in a upright position or inclined not mor than 30 degrees from the vertical. How ever, cylinders which are fitted wit flexible or bent siphon tubes may be in clined not more than 80 degrees fro the vertical.

(h) Where check valves are not fitte on each independent cylinder dis charge, plugs or caps shall be provide for closing outlets when cylinders ar removed for inspection or refilling.

(i) All cylinders used for storing car bon dioxide shall be fabricated, teste and marked in accordance with the regu lations of the Interstate Commerc Commission as noted in § 147.04-1 c Subchapter N (Dangerous Cargoes) c this chapter.

§ 34.15-25 Discharge outlets—T/ALL.

(a) Discharge outlets shall be of a approved type.

§ 34.15-30 Alarms—T/ALL.

(a) Spaces required to have a delaye discharge by § 34.15-10(f) which ar protected by a carbon dioxide extin guishing system and are normally acces sible to persons on board while the vess is being navigated, other than paint an lamp lockers and similar small space shall be fitted with an approved audibl alarm in such spaces which will be auto

matically sounded before the carbon dioxide is admitted to the space. The alarm shall be conspicuously and centrally located and shall be marked as required by § 35.40–7 of this subchapter. Such alarms shall be so arranged as to sound during the 20-second delay period prior to the discharge of carbon dioxide into the space, and the alarm shall depend on no source of power other than the carbon dioxide.

§ 34.15–35 Enclosure openings—T/ALL.

(a) Except for cargo spaces, the operation of the carbon dioxide system shall automatically shut down any mechanical ventilation to that space. This will not be required where the carbon dioxide system is a secondary system in addition to another approved primary system protecting the space.

(b) Where natural ventilation is provided for spaces protected by a carbon dioxide extinguishing system, provisions shall be made for easily and effectively closing off the ventilation.

(c) Means shall be provided for closing all other openings to the space protected from outside such space. In this respect, relatively tight doors, shutters, or dampers shall be provided for openings in the lower portion of the space, The construction shall be such that openings in the upper portion of the space can be closed off either by permanently installed means or by the use of canvas or other material which is normally carried by the vessel.

§ 34.15–40 Pressure relief—T/ALL.

(a) Where necessary, relatively tight compartments such as refrigeration spaces, paint lockers, etc., shall be provided with suitable means for relieving excessive pressure accumulating within the compartment when the carbon dioxide is injected.

§ 34.15–90 Installations contracted for prior to January 1, 1962—T/ALL.

(a) Installations contracted for prior to November 19, 1952, shall meet the requirements of this paragraph.

(1) Existing arrangements, materials, and facilities previously approved shall be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) The details of the systems shall be in general agreement with §§ 34.15–5 through 34.15–40 insofar as is reasonable and practicable, with the exception of § 34.15–5 (e)(1) through (3) covering spaces other than cargo spaces, which systems may be installed in accordance with subparagraphs (4) through (7) of this paragraph.

(3) For cargo tanks at least one pound of carbon dioxide shall be available for each 30 cubic feet of the largest cargo tank. The discharge of the required amount of carbon dioxide shall be complete within 5 minutes.

(4) In boilerrooms, the bilges shall be protected by a system discharging principally below the floor plates. Perforated pipe may be used in lieu of discharge nozzles for such systems. The number of pounds of carbon dioxide shall be equal to the gross volume of the boiler room taken to the top of the boilers divided by 36. In the event of an elevated boilerroom which drains to the machinery space, the system shall be installed in the engineroom bilge and the gross volume shall be taken to the flat on which the boilers are installed.

(5) In machinery spaces where main propulsion internal combustion machinery is installed, the number of pounds of carbon dioxide required shall be equal to the gross volume of the space taken to the underside of the deck forming the hatch opening divided by 22.

(6) In miscellaneous spaces other than cargo or main machinery spaces the number of pounds of carbon dioxide required shall be equal to the gross volume of the space divided by 22.

(7) Branch lines to the various spaces other than cargo and similar spaces shall be as noted in Table 34.15–90(a)(7). This table is based on cylinders having discharge outlets and siphon tubes of ⅜-inch diameter.

TABLE 34.15–90(a)(7)

Number of cylinders		Nominal pipe size, inches
Over—	Not over—	
----------	2	¼-standard.
2	4	¾-standard.
4	6	1-extra heavy.
6	12	1¼-extra heavy.
12	16	1½-extra heavy.
16	27	2-extra heavy.
27	39	2½-extra heavy.
39	60	3-extra heavy.
60	80	3½-extra heavy.
80	104	4-extra heavy.
104	165	5-extra heavy.

(b) Installations contracted for on or after November 19, 1952, but prior to January 1, 1962, shall meet the requirements of this paragraph.

(1) Existing arrangements, materials, and facilities previously approved shall be considered satisafctory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) The details of the systems shall be in general agreement with §§ 34.15–5 through 34.15–40 insofar as is reasonable and practicable with the exception that delayed discharges need not be provided for installations made prior to July 1, 1957.

[CGFR 65–50, 30 F.R. 16694, Dec. 30, 1966, as amended by CGFR 66–33, 31 F.R. 15268, Dec. 6, 1966]

Subpart 34.17—Fixed Foam Extinguishing Systems, Details

§ 34.17–1 Application—T/ALL.

(a) Where a fixed foam extinguishing system is installed, the provisions of this Subpart with the exception of § 34.17–90, shall apply to all installations contracted for on or after January 1, 1962.

(b) Installations contracted for prior to January 1, 1962, shall meet the requirements of § 34.17–90.

§ 34.17–5 Quantity of foam required—T/ALL.

(a) *Area protected.* (1) For machinery spaces and pumprooms, the system shall be so designed and arranged as to spread a blanket of foam over the entire tank top or bilge of the space protected. The arrangement of piping shall be such as to give a relatively uniform distribution over the entire area protected.

(2) Where an installation is made to protect an oil-fired boiler installation on a flat which is open to or can drain to the lower engineroom or other space, both the flat and the lower space shall be protected simultaneously. The flat shall be fitted with suitable coamings on all openings other than deck drains to properly restrain the oil and foam at that level. Other installations of a similar nature will be considered in a like manner.

(b) *Rate of application.* (1) The rate of discharge to foam outlets protecting the hazard shall be at least as set forth in this paragraph.

(2) For chemical foam systems with stored "A" and "B" solutions, a total of at least 1.6 gallons per minute of the two solutions shall be discharged for each 10 square feet of area protected.

(3) For other types of foam systems, the water rate to the dry-powder generators or air foam production equipment shall be at least 1.6 gallons per minute for each 10 square feet of area protected.

(c) *Supply of foam-producing material.* (1) There shall be provided a quantity of foam-producing material sufficient to operate the equipment at the minimum discharge rate specified in paragraph (b) of this section for a period of at least 3 minutes.

(d) *Separate supply of foam-producing material.* (1) A separate supply of foam-producing material need not be provided for each space protected. This includes a deck foam system. The total available supply shall be at least sufficient for the space requiring the greatest amount.

(e) *Water supply for required pumps.* (1) The water supply shall be from outside and completely independent of the space protected.

§ 34.17–10 Controls—T/ALL.

(a) The foam agent, its container, measuring devices, and other items peculiar to the system shall be of an approved type.

(b) The foam-producing material container and all controls and valves for the operation of the system shall be outside the space protected and shall not be located in such space as might be cut off or made inaccessible in the event of fire in any of the spaces protected. The control space shall be as convenient as practicable to one of the main escapes from the spaces protected, and shall be marked as required by § 35.40–10 of this subchapter. Where pumps are required, it shall not be necessary that they be started from the control space.

(c) Complete, but simple instructions for the operation of the system shall be located in a conspicuous place at or near the controls.

(d) The valves to the various spaces served shall be marked as required by § 35.40–10 of this subchapter.

§ 34.17-15 Piping—T/ALL.

(a) All piping, valves, and fittings shall meet the applicable requirements of Subchapter F (Marine Engineering) of this chapter.

(b) All piping, valves, and fittings of ferrous materials shall be protected inside and outside against corrosion unless specifically approved otherwise by the Commandant.

(c) All piping, valves, and fittings shall be securely supported, and where necessary, protected against injury.

(d) Drains and dirt traps shall be fitted where necessary to prevent the accumulation of dirt or moisture.

(e) Piping shall not be used for any other purpose than firefighting, drills and testing.

§ 34.17-20 Discharge outlets—T/ALL.

(a) Discharge outlets shall be of an approved type.

§ 34.17-25 Additional protection required—T/ALL.

(a) In order that any residual fires above the floor plates may be extinguished when a foam system is installed for the protection of machinery spaces, at least 2 fire hydrants, in addition to those required for the machinery space by Subpart 34.10, shall be installed outside of the machinery space entrance. Such hydrants shall be fitted with sufficient hose so that any part of the machinery space may be reached with at least 2 streams of water, and each hose shall be equipped with an approved combination nozzle and applicator.

§ 34.17-90 Installations contracted for prior to January 1, 1962—T/ALL.

(a) Installations contracted for prior to January 1, 1962, shall meet the following requirements:

(1) Existing arrangements, materials, and facilities previously approved shall be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) The details of the systems shall be in general agreement with §§ 34.17-5 through 34.17-20, insofar as is reasonable and practicable. Installations contracted for prior to November 19, 1952, need not comply with paragraph (a)(2) of § 34.17-5 and § 34.17-25. A 6-inch blanket of foam in 3 minutes for machinery spaces and pumprooms will be considered as meeting the requirements of § 34.17-5.

(3) Where a system is installed to protect a tank, it shall be so designed and arranged as to spread a blanket of foam over the entire liquid surface of the tank within the range of usual trim. The arrangement of piping shall be such as to give a relatively uniform distribution over the entire area protected.

(4) For tanks, the rate of discharge to foam outlets protecting the hazard shall be as set forth in § 34.17-5(b), except that the value of 1 gallon per minute shall be substituted in both cases for the value of 1.6 gallons per minute. The quantity of foam provided shall be sufficient to operate the equipment for 5 minutes.

(5) On installations installed prior to November 19, 1952, a semiportable foam generator using a dry-chemical mixture or mechanical foam in conjunction with the fire lines may be substituted for the fixed system subject to the following conditions:

(i) There shall be at least one fire pump of suitable capacity available which can be operated and controlled from outside the space protected.

(ii) Stop valves shall be installed in the line so that if any portion of the fire main is ruptured, the foam generator may still be operated. Connections for at least two fire hoses shall be provided between the pump and the stop valve.

(iii) If the foam system is of the portable or semiportable type, the apparatus and chemicals shall be stored in a readily accessible place protected from the weather.

Subpart 34.20—Deck Foam System, Details

§ 34.20-1 Application—T/ALL.

(a) Where a deck foam system is installed, the provisions of this subpart, except § 34.20-90, apply to all installations that are contracted for on or after January 1, 1970, unless otherwise indicated.

(b) Installations contracted for prior to January 1, 1970, shall meet the requirements of § 34.20-90.

[CGFR 69-72, 34 F.R. 17481, Oct. 29, 1969, as amended by CGD 74-127, 41 FR 3846, Jan. 26, 1976]

§ 34.20-3 Cargo area definition—T/ALL.

(a) For the purpose of this subpart, the term "cargo area" is defined as the maximum beam of the vessel times the total longitudinal extent of the cargo tank spaces.

§ 34.20-5 Quantity of foam required—T/ALL.

(a) *Area protected.* Systems of this type are designed to give primary protection to the spaces over the cargo tanks.

(b) *Rate of application.* The water rate of the foam production equipment shall be determined as follows:

(1) For usual petroleum products the water rate shall be at least 0.016 gallons per minute for each square foot of the cargo area or 0.24 gallons per minute for each square foot of the horizontal sectional area of the single tank having the largest such area, whichever is greater.

(2) For polar solvent products (e.g. alcohols, ketones, etc.) the water rate shall be determined for each vessel. The rate will depend upon the vessel design, products to be carried and foam system to be used.

(c) *Supply of foam-producing material.* Each deck foam system must have a supply of foam-producing material sufficient to operate the system at its designed rate of foam production for the following periods:

(1) For installations contracted for on or after January 1, 1970, 15 minutes without recharging, except as required in subparagraph (c)(2) of this section.

(2) For installations on ships that have a keel laying date on or after January 1, 1975, 20 minutes without recharging.

(d) *Separate supply of foam-producing material.* Where the same foam-producing material may be used for this system as well as a fixed foam system, separate supplies need not be provided for each space protected. The total available supply shall be at least sufficient for the space requiring the greatest amount.

(e) *Water supply.* Suitable pumps shall be provided capable of producing the required water rate. The fire pumps required by Subpart 34.10 may be used for this purpose; however, the operation of the deck foam system shall not interfere with the simultaneous use of the fire main system.

[CGFR 65-50, 30 F.R. 16694, Dec. 30, 1965, as amended by CGFR 69-72, 34 F.R. 17481, Oct. 29, 1969; CGD 74-127, 41 FR 3846, Jan. 26, 1976]

§ 34.20-10 Controls—T/ALL.

(a) The foam agent, its container, measuring devices, and other items peculiar to this system shall be of an approved type.

(b) The foam agent container and the main controls for operating the system shall be located in a protected space not likely to be made inaccessible in the event of a fire in any portion of the cargo area.

(c) Complete, but simple instructions for the operation of the system shall be located in a conspicuous place at or near the controls.

(d) All valves shall be marked as required by § 35.40-17.

(e) The deck foam system on each tankship that has a keel laying date on or after January 1, 1975, must be capable of being actuated, including introduction of foam to the foam main, within three minutes of notification of a fire.

[CGFR 65-50, 30 FR 16694, Dec. 30, 1965, as amended by CGD 74-127, 41 FR 3846, Jan. 26, 1976]

§ 34.20-15 Piping—T/ALL.

(a) All piping, valves, and fittings shall meet the applicable requirements of Subchapter F (Marine Engineering) of this chapter.

(b) All piping, valves, and fittings of ferrous materials shall be protected inside and outside against corrosion unless specifically approved otherwise by the Commandant.

(c) The piping and outlet arrangement shall allow the required rate of applications as contained in § 34.20-5(b), to any portion of the open deck of the cargo area through the use of the mounted and hand-held appliances that are provided. At least 50 percent of the required rate of application shall be from the mounted appliances. One or more hose outlets for hand-held appliances shall be provided at each foam station. For enclosed spaces, application of at least 1.6 gallons per minute water rate for each 10 square feet of the enclosed area for 5 minutes is acceptable. For the purpose of this paragraph, all piping is assumed to be damaged in way

of the fire and an adequate number of valves shall be fitted to prevent loss of foam by closing valves to damaged piping.

(d) All piping, valves, and fittings shall be securely supported, and where necessary, protected against injury.

(e) Drains and dirt traps shall be fitted where necessary to prevent the accumulation of dirt or moisture.

(f) Piping shall not be used for any other purpose than firefighting, drills, and testing.

(g) Tankships of 100,000 or more DWT (metric) and combination carriers of 50,000 or more DWT (metric) that have a keel laying date on or after January 1, 1975, must have at least one foam station port and at least one foam station starboard that are separated from each other by a distance equal to at least one-half the beam of the vessel—

(1) At the housefront or aft of the cargo area in a location that is accessible to the crew for fighting a cargo and a pumproom fire; and

(2) If the tankship has a forward accommodations house, at the after boundary of that house.

[CGFR 65-50, 30 F.R. 16694, Dec. 30, 1965, as amended by CGFR 69-72, 34 F.R. 17481, Oct. 29, 1969; CGD 72-138, 39 FR 7790, Feb. 28, 1974; CGD 74-127, 41 FR 3846, Jan. 26, 1976]

§ 34.20-20 Discharge outlets—T/ALL.

(a) Discharge outlets shall be of an approved type.

(b) At least one mounted foam appliance shall be provided for each station that is required in § 34.20-15(c).

(c) The number of hand-held appliances provided shall be at least equal to the number of hose outlets at the two foam stations having the most hose outlets. Hand-held appliances shall be stowed in a well marked, readily accessible position that cannot be isolated by a fire involving the cargo tanks.

[CGFR 65-50, 30 FR 16694, Dec. 30, 1965, as amended by CGD 72-138, 39 FR 7790, Feb. 28, 1974]

§ 34.20-25 Foam monitor capacity—T/ALL.

The capacity of each foam monitor on ships that have a keel laying date on or after January 1, 1975, must be at least 3 liters per minute per square meter (.073 gallons per minute per square foot) of cargo area protected by that monitor.

[CGD 74-127, 41 FR 3846, Jan. 26, 1976]

§ 34.20-90 Installations contracted for prior to January 1, 1970—T/ALL.

(a) Installations contracted for prior to January 1, 1970, shall meet the following requirements:

(1) Existing arrangements, materials, and facilities previously approved shall be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) For installations contracted for prior to November 19, 1952, see § 34.17-90(a)(5).

(3) Installations contracted for on or after November 4, 1957, but prior to January 1, 1970, shall meet the requirements of §§ 34.20-5 through 34.20-20 insofar as is reasonable and practicable.

[CGFR 65-50, 30 F.R. 16694, Dec. 30, 1965, as amended by CGFR 69-72, 34 F.R. 17481, Oct. 29, 1969]

Subpart 34.25—Water Spray Extinguishing Systems, Details

§ 34.25-1 Application—T/ALL.

(a) Where a water spray extinguishing system is installed, the provisions of this subpart, with the exception of § 34.25-90, shall apply to all installations contracted for on or after January 1, 1964. Installations contracted for prior to January 1, 1964, shall meet the requirements of § 34.50-90.

§ 34.25-5 Capacity and arrangement—T/ALL.

(a) The capacity and arrangement shall be such as to effectively blanket the entire area of the space protected. The rate of discharge and the arrangement of piping and spray nozzles shall be such as to give a uniform distribution over the entire area protected.

(b) The spacing of the spray nozzles shall be on the basis of the spray pattern provided by the lowest pressure at any spray nozzle in the system. In no instance shall a system be designed for any spray nozzle to be operated at a pressure less than that for which it was approved. The maximum permissible height of the spray nozzle above the protected area shall not exceed that specified in its approval. Whenever there are obstructions to coverage by the spray

patterns, additional spray nozzles shall be installed to provide full coverage.

(c) The water supply shall be from outside the space protected and shall in no way be dependent upon power from the space protected. The pump supplying water for the system shall either be reserved exclusively for the system or it may be one of the fire pumps, provided the capacity of the fire pump as set forth in Subpart 34.10 is increased by the required capacity of the system, so that this system may be operated simultaneously with the fire main system.

§ 34.25-10 Controls—T/ALL.

(a) There shall be one control valve for the operation of the system located in an accessible position outside the space protected. The control shall be located as convenient as practicable to one of the main escapes from the space protected, and shall be marked as required by § 35.40-18 of this subchapter. It shall not be necessary to start the pumps from the control space.

(b) Complete, but simple instructions for the operation of the system shall be located in a conspicuous place at or near the controls.

(c) The valve to the space protected shall be marked as required by § 35.40-18 of this subchapter.

§ 34.25-15 Piping—T/ALL.

(a) All piping, valves and fittings shall meet the applicable requirements of Subchapter F (Marine Engineering) of this chapter.

(b) Distribution piping shall be of materials resistant to corrosion, except that steel or iron pipe may be used if inside corrosion resistant coatings which will not flake off and clog the nozzles are applied. Materials readily rendered ineffective by heat of a fire shall not be used. The piping shall be subject to approval for each installation.

(c) All piping, valves, and fittings shall be securely supported, and where necessary, protected against injury.

(d) Drains, strainers, and dirt traps shall be fitted where necessary to prevent the accumulation of dirt or moisture.

(e) Threaded joints shall be metal to metal, with no thread compound used.

(f) Distribution piping shall be used for no other purpose.

(g) All piping shall be thoroughly cleaned and flushed before installation of the water spray nozzles.

§ 34.25-20 Spray nozzles—T/ALL.

(a) Spray nozzles shall be of an approved type.

§ 34.25-90 Installations contracted for prior to January 1, 1964—T/ALL.

(a) Installations contracted for prior to January 1, 1964, shall meet the following requirements:

(1) Existing arrangements, materials, and facilities previously approved shall be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) The details of the systems shall be in general agreement with §§ 34.25-5 through 34.25-20 insofar as is reasonable and practicable.

Subpart 34.50—Portable and Semiportable Extinguishers

§ 34.50-1 Application—TB/ALL.

(a) The provisions of this subpart, with the exception of § 34.50-90, shall apply to all vessels contracted for on or after January 1, 1962.

(b) All vessels contracted for prior to January 1, 1962, shall meet the requirements of § 34.50-90.

§ 34.50-5 Classification—TB/ALL.

(a) Portable and semiportable extinguishers shall be classified by a combination letter and number symbol. The letter indicating the type of fire which the unit could be expeced to extinguish, and the number indicating the relative size of the unit.

(b) The types of fire will be designated as follows:

(1) "A" for fires in ordinary combustible materials such as mattresses, piles of wood, shavings, canvas, etc., where the quenching and cooling effects of quantities of water, or solutions containing large percentages of water, are of first importance.

(2) "B" for fires in combustible or flammable liquids such as gasoline,

lubricating oil, diesel oil, greases, etc., where a blanketing or smothering effect is essential.

(3) "C" for fires in electrical equipment where the use of non-conducting extinguishing agent is of first importance so that electrical shock is not experienced by the firefighter.

(c) The number designations for size will start with "I" for the smallest to "V" for the largest. Extinguishers which have a gross weight of 55 pounds or less when fully charged are considered portable. Extinguishers which have a gross weight of more than 55 pounds when fully charged are considered semiportable and shall be fitted with suitable hose and nozzle or other practicable means so that all portions of the space concerned may be reached. Examples of size graduations for some of the typical portable and semiportable extinguishers are set forth in Table 34.50–5(c).

TABLE 34.50—5(c)

Classification type (*Size*)	Soda-acid and water (*Gallons*)	Foam (*Gallons*)	Carbon dioxide (*Pounds*)	Dry chemical (*Pounds*)
A-II	2½	2½		
B-I		1¼	4	2
B-II		2½	15	10
B-III			12	35
B-IV			20	50
B-V			40	[1] 100
C-I			4	2
C-II			15	10

[1] For outside use, double the amount shall be carried.

§ 34.50–10 Location—TB/ALL.

(a) Approved portable and semiportable extinguishers shall be installed in accordance with Table 34.50–10(a). The location of the equipment shall be such as in the opinion of the Officer in Charge, Marine Inspection, will be most convenient in case of emergency. Where special circumstances exist, not covered by Table 34.50–10(a), the Officer in Charge, Marine Inspection, may require such additional equipment as he deems necessary for the proper protection of the vessel.

(b) For additional portable extinguishers as a substitute for sand, see § 34.55–10.

(c) Semiportable extinguishers shall be located in the open so as to be readily seen.

(d) If portable extinguishers are not located in the open or behind glass so that they may be readily seen they may be placed in enclosures together with the fire hose, provided such enclosures are marked as required by § 35.40–25 of this subchapter.

(e) Portable extinguishers and their stations shall be numbered in accordance with § 34.40–25 of this subchapter.

(f) Hand portable or semiportable extinguishers which are required on their nameplates to be protected from freezing shall not be located where freezing temperatures may be expected.

[CGFR 65–50, 30 F.R. 16694, Dec. 30, 1965, as amended by CGFR 70–143, 35 F.R. 19905, Dec. 30, 1970]

TABLE 34.50–10(a)—PORTABLE AND SEMIPORTABLE EXTINGUISHERS

Tan ships		Area	Tank barges	
Quantity and location	Classification (see § 34.50–5)		Classification (see § 34.50–5)	Quantity and location
Safety Areas				
1 required	C-II	Wheelhouse and chartroom area.		None required.
1 required in vicinity of exit.	C-II [1]	Radio room		None required.
Accommodation Areas				
1 required in each main passageway on each deck, conveniently located, and so that no room is more than 75 feet from an extinguisher.	A-II or B-II	Staterooms, toilet spaces, public spaces, offices, etc., and associated lockers, storerooms, and pantries.	A-II or B-II	1 required in vicinity of exit.

See footnotes at end of table.

TABLE 34.50-10(a)—PORTABLE and SEMIPORTABLE EXTINGUISHERS—Continued

Tank ships		Area	Tank Barges	
Quantity and location	Classification (See § 34.50-5)		Classification (see § 34.50-5)	Quantity and location
		Service Areas		
1 required for each 2,500 square feet or fraction thereof, suitable for hazard involved.	B-II or C-II	Galleys	B-II or C-II	1 required, suitable for hazard involved.
1 required for each 2,500 square feet or fraction thereof, suitable for hazard involved.	A-II or B-II	Stores areas, including paint and lamp rooms.		None required.
		Machinery Area [2]		
2 required [3]	B-II and	Spaces containing oil fired boilers, either main or auxiliary, or any fuel oil units subject to the discharge pressure of the fuel oil service pump.	B-II	1 required. [12]
1 required	B-V [4]			
1 required for each 1,600 B.H.P., but not less than 2 nor more than 6.[5]	B-II and	Spaces containing internal combustion or gas turbine propulsion machinery.		None required.
1 required [6 7]	B-III			
1 required in vicinity of exit.[7]	B-II	Auxiliary spaces containing internal combustion or gas turbine units.	B-II	1 required in vicinity of exit.[7 9 12]
1 required in vicinity of exit [8]	C-II	Auxiliary spaces containing emergency generators.		None required.
		Cargo Areas		
1 required in lower pumproom.	B-II	Pumprooms	B-II	1 required in vicinity of exit.[9 12]
None required		Cargo tank area	B-II and B-V	2 required. [10 12] 1 required. [9 11]

[1] Vessels not on an international voyage may substitute 2 C-I.

[2] A C-II shall be immediately available to the service generator and main switchboard areas, and further, a C-II shall be conveniently located not more than 50 feet walking distance from any point in all main machinery operating spaces. These extinguishers need *not* be in addition to other required extinguishers.

[3] Vessels of less than 1,000 gross tons require 1.

[4] Vessels of less than 1,000 gross tons may substitute 1 B-IV.

[5] Only 1 required for vessels under 65 feet in length.

[6] If oil burning donkey boiler fitted in space, the B-V previously required for the protection of the boiler may be substituted. Not required where a fixed carbon dioxide system is installed.

[7] Not required on vessels of less than 300 gross tons if fuel has a flashpoint higher than 110° F.

[8] Not required on vessels of less than 300 gross tons.

[9] Not required if fixed system installed.

[10] If no cargo pump on barge, only one B-II required.

[11] Manned barges of 100 gross tons and over only.

[12] Not required on unmanned barges except during transfer of cargo, or operation of barge machinery, or boilers. (See § 35.35-1(c) of this chapter.)

§ 34.50–15 Spare charges—TB/ALL.

(a) Spare charges shall be carried on all vessels for at least 50 percent of each size and each variety, i.e. foam, soda-acid, carbon dioxide, etc., of portable extinguisher required by § 34.50–10(a). However, if the unit is of such variety that it cannot be readily recharged by the vessel's personnel, one spare unit of the same classification shall be carried in lieu of spare charges for all such units of the same size and variety. This section does not apply to unmanned barges.

(b) Spare charges shall be so packaged as to minimize the hazards to personnel while recharging the units.

§ 34.50–90 Vessels contracted for prior to January 1, 1962—TB/ALL.

(a) Vessels contracted for prior to January 1, 1962, shall meet the following requirements:

(1) The provisions of §§ 34.50–5 through 34.50–15 shall be met with the exception that existing installations may be maintained if in the opinion of the Officer in Charge, Marine Inspection,

they are in general agreement with the degree of safety prescribed by Table 34.50-10(a). In such cases, minor modifications may be made to the same standard as the original installation: *Provided,* That in no case will a greater departure from the standards of Table 34.50-10(a) be permitted than presently exists.

Subpart 34.55—Sand

§ 34.55-1 Application—TB/ALL.

(a) The provisions of this part shall apply to all vessels having oil fired boilers, either main or auxiliary.

§ 34.55-5 Amount required—TB/ALL.

(a) On vessels of over 1,000 gross tons there shall be in each space containing oil fired boilers a metal receptacle containing not less than 10 cubic feet of sand, sawdust impregnated with soda, or other approved dry materials, together with a scoop or shaker for distributing the same. On vessels of 1,000 gross tons or less, at least 5 cubic feet of such materials shall be similarly carried.

§ 34.55-10 Substitute—TB/ALL.

(a) An additional B-II portable extinguisher may be carried in lieu of the sand required by this part.

Subpart 34.60—Fire Axes

§ 34.60-1 Application—T/ALL.

(a) The provisions of this subpart shall apply to all tankships.

§ 34.60-5 Number required—T/ALL.

(a) All tankships shall carry at least the minimum number of fire axes as set forth in Table 34.60-5(a). Nothing in this paragraph shall be construed as limiting the Officer in Charge, Marine Inspection, from requiring such additional fire axes as he deems necessary for the proper protection of the tankship.

TABLE 34.60-5(a)

Gross tons		Number of axes
Over—	Not over—	
----------	50	1
50	200	2
200	500	3
500	1,000	4
1,000	----------	5

§ 34.60-10 Location—T/ALL.

(a) Fire axes shall be distributed throughout the spaces so as to be most readily available in the event of emergency.

(b) If fire axes are not located in the open, or behind glass, so that they may readily be seen, they may be placed in enclosures together with the fire hose, provided such enclosures are marked as required by § 35.40-15 of this subchapter.

PART 35—OPERATIONS

Subpart 35.01—Special Operating Requirements

Sec.

35.01-1 Inspection and testing required when making alterations, repairs, or other such operations involving riveting, welding, burning, or like fire-producing actions—TB/ALL.
35.01-5 Sanitary condition and crew quarters—T/ALL.
35.01-10 Shipping papers—TB/ALL.
35.01-15 Carriage of persons other than crew—TB/ALL.
35.01-20 Pilot ladders—T/OC.
35.01-25 Sacrificial anode installations—TB/ALL.
35.01-30 Reckless or negligent operation prohibited by law—TB/ALL.
35.01-35 Repairs and alterations to fire-fighting equipment—TB/ALL.
35.01-40 Prevention of oil pollution—TB/ALL.
35.01-45 Open hopper type barges—B/ALL.
35.01-50 Special operating requirements for tank barges carrying certain dangerous bulk cargoes—B/ALL.

Subpart 35.03—Work Vests

35.03-1 Application—TB/ALL.
35.03-5 Approved unicellular plastic foam work vests—TB/ALL.
35.03-10 Use—TB/ALL.
35.03-15 Shipboard stowage—TB/ALL.
35.03-20 Shipboard inspections—TB/ALL.

Subpart 35.05—Officers and Crews

35.05-1 Licensed officers and crews of tankships—T/ALL.
35.05-5 Master required on tankships—T/ALL.
35.05-10 Pilot required on tankships—T/LBR.
35.05-15 Watchman for a tank vessel—TB/ALL.
35.05-20 Physical condition of crew—TB/ALL.
35.05-25 Illness, alcohol, drugs—TB/ALL.

Subpart 35.07—Logbook Entries

35.07-1 Application—TB/ALL.
35.07-5 Logbooks and records—TB/ALL.

Sec.
35.07-10 Actions required to be logged—TB/ALL.
35.07-15 Official log entries—TB/OC.

Subpart 35.10—Fire and Emergency Requirements

35.10-1 Station bills, muster lists, and line-throwing appliance drills—T/ALL.
35.10-3 Display of plans—TB/ALL.
35.10-5 Emergency signals; fire and lifeboat drills—T/ALL.
35.10-7 Electric power-operated lifeboat winches—T/ALL.
35.10-9 Posting placards containing instructions for launching and inflating inflatable liferafts—TB/ALL.
35.10-15. Emergency lighting and power systems—T/ALL.
35.10-20 Radio apparatus for lifeboats—T/OC.
35.10-25 Emergency position indicating radiobeacon (EPIRB)—T/OC.

Subpart 35.12—Placard of Lifesaving Signals and Breeches Buoy Instructions

35.12-1 Application—T/OCLB.
35.12-5 Availability—T/OCLB.

Subpart 35.15—Casualty or Accident Reports

35.15-1 Notice of casualty and voyage records—TB/ALL.
35.15-5 Reports by engineers of accidents involving boilers or machinery—T/ALL.
35.15-10 Reports when a state of war exists—T/ALL.
35.15-13 Notice and reports of certain hazardous materials incidents.

Subpart 35.20—Navigation

35.20-1 Notice to mariners; aids to navigation—T/OCLB.
35.20-5 Draft of tank ships—T/OC.
35.20-10 Steering gear test—T/ALL.
35.20-15 Steering orders—TB/ALL.
35.20-20 Master's and officer's responsibility—TB/ALL.
35.20-25 Unauthorized lights—T/ALL.
35.20-30 Flashing the rays of a searchlight or other blinding light—T/ALL.
35.20-35 Whistling—T/ALL.
35.20-40 Maneuvering characteristics—T/OC.

Subpart 35.25—Engine Department

35.25-1 Examination of boilers and machinery by engineer—T/ALL.
35.25-5 Repairs of boilers and unfired pressure vessels and reports of repairs or accidents by chief engineer—TB/ALL.
35.25-10 Requirements for fuel oil—T/ALL.
35.25-15 Carrying of excess steam—TB/ALL.
35.25-20 Breaking of safety valve seal—TB/ALL.

Subpart 35.30—General Safety Rules

35.30-1 Warning signals and signs—TB/ALL.

Sec.
35.30-5 Fires, matches, and smoking—TB/ALL.
35.30-10 Cargo tank hatches, ullage holes, and Butterworth plates—TB/ALL.
35.30-15 Combustible gas indicator—TB/ALL.
35.30-20 Emergency equipment—TB/ALL.
35.30-25 Explosives—TB/ALL.
35.30-30 Portable electrical equipment—TB/ALL.
35.30-35 Spark producing devices—TB/ALL.
35.30-40 Flammable liquid and gas fuels as ship's stores—TB/ALL.
35.30-45 Motion picture film—TB/ALL.

Subpart 35.35—Cargo Handling

35.35-1 Men on duty—TB/ALL.
35.35-5 Electric bonding—TB/ALL.
35.35-10 Closing of scuppers and sea valves—TB/ALL.
35.35-15 Connecting for cargo transfer—TB/ALL.
35.35-20 Inspection prior to transfer of cargo—TB/ALL.
35.35-25 Approval to start transfer of cargo—TB/ALL.
35.35-30 "Declaration of Inspection" for tank ships—T/ALL.
35.35-35 Duties of senior deck officer during transfer operations—TB/ALL.
35.35-40 Conditions under which transfer operations shall not be commenced or if started shall be discontinued—TB/ALL.
35.35-42 Restrictions on vessel coming alongside a tank vessel while loading Grade A, B, or C cargo—TB/ALL.
35.35-45 Auxiliary steam, air, or electric current—B/ALL.
35.35-50 Termination of transfer operations—TB/ALL.
35.35-55 Transfer of other cargo or stores on tank vessels—TB/ALL.
35.35-60 Transportation of other cargo or stores on tank barges—B/ALL.
35.35-70 Maintenance of cargo handling equipment—TB/ALL.
35.35-75 Emergencies—TB/ALL.

Subpart 35.40—Marking of Fire and Emergency Equipment

35.40-1 General alarm contact maker—TB/ALL.
35.40-5 General alarm bells—TB/ALL.
35.40-6 Emergency lights—TB/ALL.
35.40-7 Carbon dioxide alarm—T/ALL.
35.40-10 Steam, foam, or CO_2 fire smothering apparatus—TB/ALL.
35.40-15 Fire hose stations—TB/ALL.
35.40-17 Foam hose/monitor stations—T/ALL.
35.40-18 Water spray systems—TB/ALL.
35.40-20 Emergency equipment—TB/ALL.
35.40-25 Fire extinguishers—TB/ALL.
35.40-30 Instructions for changing steering gear—TB/ALL.
35.40-35 Rudder orders—TB/ALL.

Sec.
35.40-40 Vessel's name on equipment—TB/ALL.

Subpart 35.70—Power-Operated Industrial Trucks

35.70-1 Application—TB/ALL.
35.70-3 Alternates—TB/ALL.
35.70-5 Definitions of terms used in subpart—TB/ALL.
35.70-7 Approved power-operated industrial trucks—TB/ALL.
35.70-10 Permissible areas of use—TB/ALL.
35.70-15 Types of cargo permitted to be handled by trucks—TB/ALL.
35.70-20 Special operating conditions—TB/ALL.
35.70-25 Refueling—TB/ALL.
35.70-30 Charging or replacing batteries—TB/ALL.
35.70-35 Stowage of trucks aboard a vessel—TB/ALL.

AUTHORITY: The provisions of this Part 35 issued under R.S. 4405, as amended, 4417a, as amended, 4462, as amended, sec. 6(b)(1), 80 Stat. 938; 46 U.S.C. 375, 391a, 416, 49 U.S.C. 1655(b); 49 CFR 1.46(b) (35 F.R. 4959) R.S. 4472, as amended, 4488, as amended, 4491, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 170, 481, 489, 50 U.S.C. 198; E.O. 11239, July 31, 1965, 30 F.R. 9671, 3 CFR, 1965 Supp.

SOURCE: The provisions of this Part 35 contained in CGFR 65-50, 30 F.R. 16704, Dec. 30, 1965. unless otherwise noted.

Subpart 35.01—Special Operating Requirements

§ 35.01-1 Inspection and testing required when making alterations, repairs, or other such operations involving riveting, welding, burning, or like fire-producing actions—TB/ALL.

(a) The provisions of "Standard for the Control of Gas Hazards on Vessels to be Repaired," NFPA No. 306, published by Nation Fire Protection Association, 60 Batterymarch Street, Boston, Mass. 02110, shall be used as a guide in conducting the inspections and issuance of certificates required by this section.

(b) Until an inspection has been made to determine that such operation can be undertaken with safety, no alterations, repairs, or other such operations involving riveting, welding, burning, or like fire-producing actions shall be made:

(1) Within or on the boundaries of cargo tanks which have been used to carry flammable or combustible liquid or chemicals in bulk, or within spaces adjacent to such cargo tanks; or,

(2) Within or on the boundaries of fuel tanks; or,

(3) To pipe lines, heating coils, pumps, fittings, or other appurtenances connected to such cargo or fuel tanks.

(c) Such inspections shall be made and evidenced as follows:

(1) In ports or places in the United States or its territories and possessions, the inspection shall be made by a marine chemist certificated by the National Fire Protection Association; however, if the services of such certified marine chemist are not reasonably available, the Officer in Charge, Marine Inspection, upon the recommendation of the vessel owner and his contractor or their representative, shall select a person who, in the case of an individual vessel, shall be authorized to make such inspection. If the inspection indicates that such operations can be undertaken with safety, a certificate setting forth the fact in writing and qualified as may be required, shall be issued by the certified marine chemist or the authorized person before the work is started. Such qualifications shall include any requirements as may be deemed necessary to maintain, insofar as can reasonably be done, the safe conditions in the spaces certified, throughout the operation and shall include such additional tests and certifications as considered required. Such qualifications and requirements shall include precautions necessary to eliminate or minimize hazards that may be present from protective coatings or residues from cargoes.

(2) When not in such a port or place, and a marine chemist or such person authorized by the Officer in Charge, Marine Inspection, is not reasonably available, the inspection shall be made by the senior officer present and a proper entry shall be made in the vessel's logbook.

(d) It shall be the responsibility of the senior officer present to secure copies of certificates issued by the certified marine chemist or such person authorized by the Officer in Charge, Marine Inspection. It shall be the responsibility of the senior officer present, insofar as the persons under his control are concerned, to maintain a safe condition on the vessel by full observance of all qualifications and requirements listed by the marine chemist in the certificate.

§ 35.01-5 Sanitary condition and crew quarters—T/ALL.

(a) It shall be the duty of the master and chief engineer of every tankship to see that such vessel and crew's quarters are kept in a sanitary condition.

(b) Crew quarters shall be kept in sanitary condition by daily cleaning and removal of rubbish, and by painting at regular intervals as needed. Floors shall be maintained in good condition to facilitate cleaning. Lighting, heating, and ventilation in quarters shall be maintained in satisfactory condition: *Provided, however,* That forced ventilation when installed may be closed down during transfer of cargo.

(c) Before making any important repairs to or changes in the electrical installation, an inspection shall be made as required by § 111.05-10(f) of Subchapter J (Electrical Engineering) of this chapter, and such changes or repairs shall (1) comply with the requirements of this Subchapter J and (2) have the approval of the chief engineer. Miscellaneous electrical appliances intended to provide additional artificial lighting, entertainment, and for personal use, etc., shall also be subject to the approval of the chief engineer.

§ 35.01-10 Shipping papers—TB/ALL.

Each loaded tank vessel shall have on board a bill of lading, manifest, or shipping document giving the name of the consignee and the location of the delivery point, the kind, grades, and approximate quantity of each kind and grade of cargo, and for whose account the cargo is being handled. The tank vessel shall not be delayed in order to secure exact quantities of cargo. Such manifests or bills of lading may be made out by the master, master of the towing vessel, owner, or agent of the owner: *Provided, however,* That in the case of unmanned barges where shipping papers are not available, an entry in the logbook of the towing vessel giving the name of the shipper and location of shipping point, the name of the consignee and location of delivery point, the approximate kind, grade, and quantity of cargo in each barge of the tow, and for whose account the cargo is being handled, shall be considered as complying with the requirements of this section.

§ 35.01-15 Carriage of persons other than crew—TB/ALL.

No person not connected with the operation of a tank ship or tank barge or not having legitimate business with said vessel, shall be permitted aboard while vessel is under way unless specifical allowed by its certificate.

§ 35.01-20 Pilot ladders—T/OC.

(a) On and after May 26, 1965, eve tankship which normally employs a pil shall have an approved type ladder f the use of the pilot in addition to t ladders required by § 33.20-1(c) of th subchapter. Pilot ladder installatio shall be in accordance with the follo ing:

(1) All pilot ladders shall be approv Type I (rope suspension) or Type (chain suspension) ladders construct in accordance with Subpart 160.017 Subchapter Q (Specifications) of th chapter.

(2) Suitable spreaders, a man ro and a safety line shall be kept readi available for use in conjunction with t pilot ladder whenever circumstances m so require.

(3) When used, the ladder shall be s cured in a position so that each step re firmly against the ship's side, and so t pilot can gain safe and convenient acce to the ship after climbing not more th 30 feet. Whenever the distance from s level is more than 30 feet, access fro the pilot ladder to the ship shall be means of an accommodation ladder other equally safe and convenient mea

(4) Arrangements shall be such th the rigging of the ladder and the emba kation and debarkation of the pilot supervised by a responsible officer of t ship, and that handholds are provided assist the pilot to pass safely and co veniently from the head of the ladd into the ship or onto the ship's deck.

(5) At night a light shining over t side shall be available for use, and t deck at the position where the pil boards the ship shall be adequate lighted.

(b) Tankships contracted for prior May 26, 1965, shall meet the requir ments of this section, except as follow

(1) Existing pilot ladders not meeti the requirements of paragraph (a)(1) this section may be continued in servi so long as they are maintained in go condition to the satisfaction of the Offic in Charge, Marine Inspection. All n or replacement ladders shall meet t applicable requirements.

§ 35.01-25 Sacrificial anode installations—TB/ALL.

(a) The installation of magnesiu sacrificial anodes in cargo tanks utiliz

or the carriage of flammable or combustible liquids in bulk is prohibited.

(b) A sacrificial anode using an aluminum alloy will be permitted in cargo tanks under the following criteria:

(1) The maximum allowable energy that can be developed by a falling anode shall be 200 foot-pounds.

(2) No anode shall be installed more than 6 feet above the bottom of the tank. Special consideration will be given when structural design prevents the anodes from falling in event of failure of the attachments.

(3) Each anode shall have at least two welded or bolted connections to the supporting structure. Special consideration will be given to proprietary attachments which provide equally safe installations.

(4) The plans of the anode installation and a chemical analysis of the alloy composition shall be submitted for approval. The anode should be magnesium free and the silicon content limited to trace amounts.

(5) The recommended construction of the anode should utilize a mild steel core with necessary attachments. Other types may be used but will require special consideration.

(c) Sacrificial anodes using materials other than those having aluminum and/or magnesium in whole or in part are permitted.

[CGFR 69–72, 34 F.R. 17482, Oct. 29, 1969]

35.01–30 Reckless or negligent operation prohibited by law—TB/ALL.

(a) Subsection 13(a) of the Act of April 25, 1940, as amended (46 U.S.C. 26*l*), reads as follows:

No person shall operate any motorboat or any vessel in a reckless or negligent manner so as to endanger the life, limb, or property of any person. To "operate" means to navigate or otherwise use a motorboat or a vessel.

[Interpret or apply sec. 17, 54 Stat. 166, as amended; 46 U.S.C. 526p)

35.01–35 Repairs and alterations to firefighting equipment—TB/ALL.

(a) No extensive repairs or alterations, except in emergency, shall be made to any fire-extinguishing apparatus, or other appliance subject to inspection, without advance notice to the Officer in Charge, Marine Inspection. Such repairs or alterations shall so far as is practicable be made with materials and tested in the manner specified within the regulations in this subchapter and Subchapter Q (Specifications) of this chapter for new construction.

(b) Emergency repairs or alterations shall be reported as soon as practicable to the Officer in Charge, Marine Inspection, where the vessel may call after such repairs are made.

§ 35.01–40 Prevention of oil pollution—TB/ALL.

A tank vessel must be operated to meet the requirements in—

(a) Section 311 of the Federal Water Pollution Control Act, as amended (86 Stat. 816; 33 U.S.C. 1321);

(b) Section 12 of the Oil Pollution Act, 1961, as amended (75 Stat. 404; 33 U.S.C. 1011); and

(c) 33 CFR parts 151, 155, and 156.

[CGD 73–58R, 39 FR 18767, May 30, 1974]

§ 35.01–45 Open hopper type barges—B/ALL.

(a) With the exception of those open hopper type barges constructed or modified in conformance with the requirements of Subpart 32.63 of this subchapter, the special operating conditions in this section apply to all other open hopper type barges carrying those cargoes listed in Table 30.25–1, of this chapter, which are defined as:

(1) Flammable liquids having a Reid vapor pressure in excess of 25 pounds per square inch, absolute, in independent tanks (Part 32 of this subchapter).

(2) Liquefied flammable gases (Part 38 of this subchapter).

(b) All open hopper type barges, while carrying in bulk any of the cargoes described in paragraph (a) of this section, shall be operated in conformance with the provisions in this section. However, the provisions in this section are not applicable to such barges when empty (not necessarily cleaned or gas-freed).

(c)(1) Except as otherwise provided in this section, no such open hopper type barge shall be placed as a lead barge in any tow. Such barges shall be placed in protected positions within the tow so that the danger from diving or swamping will be minimized. Where, due to operating conditions, compliance with this subparagraph is impossible, the provisions of subparagraph (3) of this paragraph apply. The person in charge of the towing vessels shall be responsible for compliance with this subparagraph.

(2) No such open hopper type barge shall be moved from a loading facility unless all void spaces and bilges are substantially free of water. Periodic inspections and necessary pumping shall be carried out to insure the maintenance of such water-free conditions, in order to minimize the free surface effect in both the longitudinal and transverse directions. Except when otherwise considered necessary for inspection or pumping, all hatch covers and other hull closure devices for void spaces and hull compartments shall be closed and secured at all times. In the case of unmanned barges, the person in charge of the towing vessel shall be deemed to be in charge of the barge, and all requirements to be carried out on the barge shall be carried out by or under the direction of such person.

(3) When an open hopper type barge is in an exposed position, such that protection from swamping provided by adjoining barges cannot be obtained from location within the tow alone, it shall be the responsibility of the person in charge of the towing vessel to control speed so as to insure protection against diving and swamping of the barge, having due regard to its design and freeboard, and to the operating conditions.

(d) To show that special operating requirements apply to a specific open hopper type barge, additional placards or signs shall be displayed in at least four different locations on the barge when the cargoes described in paragraph (a) of this section are carried in any form in the cargo tanks. The placards or signs shall be posted on the barge approximately amidships on each side and near the centerline of each end, facing outboard. Racks, or other suitable means, for mounting such placards or signs shall be so arranged as to provide clear visibility and shall be protected from becoming readily damaged or obscured. The placards or signs shall be at least equal in dimensions to the ICC standard tank car "Dangerous" placard (10¾ inches square or larger), and shall display a circle (10 inches in diameter or larger) with alternating quadrants of white and red, and so mounted that the red quadrants are centered on the verticle axis. The shipper and/or owner of the barge shall be responsible for the installation of the required placards or signs, including maintenance of them while such barge is in temporary storage with cargo aboard. The person in charge of the towing vessel shall be responsible for the continued maintenance of the placards or signs while such barge is in transit.

[CGFR 65-50, 30 F.R. 16704, Dec. 30, 1965, as amended by CGRR 70-10, 35 F.R. 3709, Feb. 25, 1970]

§ 35.01-50 Special operating requirements for tank barges carrying certain dangerous bulk cargoes—B/ALL.

(a) The requirements of this section shall apply to all tank barges carrying those cargoes listed on Table 30.25-1, of this chapter, which are defined as:

(1) Flammable liquids having a Reid vapor pressure in excess of 25 pounds per square inch, absolute, in independent tanks (Part 32 of this subchapter).

(2) Liquefied flammable gases (Part 38 of this subchapter).

(b) All tank barges constructed or modified in conformance with the requirements of Subpart 32.63 of this subchapter are exempt from the provisions of § 35.01-45.

(c) When it is necessary to operate box or square-end barges as lead barges of tows, the person in charge of the towing vessel shall control the speed to insure protection against diving and swamping of such barges, having due regard to their design and freeboard, and to the operating conditions.

(d) All barges, while carrying in bulk any of the cargoes described in paragraph (a) of this section, shall be operated in conformance with the provisions of this section. However, the provisions of this section are not applicable to such barges when empty and gas-freed.

(e) Barges shall not be moved from a loading facility unless all bilges and void spaces (except those used for ballasting) are substantially free of water. Periodic inspections and necessary pumping shall be carried out to insure maintenance of such water-free condition in order to minimize the free surface effects, both in the longitudinal and transverse directions. Except when otherwise considered necessary for inspection or pumping, all hatch covers

and other hull closure devices for void spaces and hull compartments other than cargo spaces shall be closed and secured at all times.

(f) During the time the cargo tanks contain dangerous cargoes described in paragraph (a) of this section in any amount, in the liquid or gaseous state, the barge shall be under constant surveillance.

(1) A strict watch of each unmanned barge in tow shall be maintained from the towing vessel while underway.

(2) A towing vessel engaged in transporting such unmanned barges shall not leave them unattended. When a barge is moored, but not gas free, it shall be under the observation of a watchman who may be a member of the complement of the towing vessel, or a terminal employee, or other person. Such person shall be responsible for the security of the barge and for keeping unauthorized persons off the barge. Such person shall be provided with, read, and have in his possession for ready reference the information cards required by § 35.01–55.

(g) The owner, operator, master, or person in charge of any barge carrying dangerous cargoes described in paragraph (a) of this section shall insure that, while the barge is being towed and during cargo transfer operations, the persons as required by § 31.15–5 of this subchapter and § 35.35–1 and information cards as required by § 35.01–55 are provided.

[CGFR 65–50, 30 F.R. 16704, Dec. 30, 1965, as amended by CGFR 70–10, 35 F.R. 3709, Feb. 25, 1970]

Subpart 35.03—Work Vests

§ 35.03–1 Application—TB/ALL.

(a) Provisions of this subpart shall apply to all tank vessels.

§ 35.03–5 Approved unicellular plastic foam work vests—TB/ALL.

(a) Buoyant work vests carried under the permissive authority of this subpart shall conform to the specifications contained in Subpart 160.053 in Subchapter Q (Specifications) of this chapter.

§ 35.03–10 Use—TB/ALL.

(a) Approved buoyant work vests are considered to be items of safety apparel and may be carried aboard tank vessels to be worn by crew members when working near or over the water under favorable working conditions. They shall be used under the supervision and control of designated ship's officers. When carried, such vests shall not be accepted in lieu of any portion of the required number of approved life preservers and shall not be substituted for the approved life preservers required to be worn during drills and emergencies.

§ 35.03–15 Shipboard stowage—TB/ALL.

(a) The approved buoyant work vests shall be stowed separately from the regular stowage of approved life preservers.

(b) The locations for the stowage of work vests shall be such as not to be easily confused with that for approved life preservers.

§ 35.03–20 Shipboard inspections—TB/ALL.

(a) Each work vest shall be subject to examination by a marine inspector to determine its serviceability. If found to be satisfactory, it may be continued in service, but shall not be stamped by a marine inspector with a Coast Guard stamp. If a work vest is found not to be in a serviceable condition, then such work vest shall be removed from the vessel. If a work vest is beyond repair, it shall be destroyed or multilated in the presence of a marine inspector so as to prevent its continued use as a work vest.

Subpart 35.05—Officers and Crews

§ 35.05–1 Licensed officers and crews of tankships—T/ALL.

No tankship of the United States shall be navigated unless she shall have in her service and on board such complement of licensed officers and crew, including certificated lifeboatmen and certificated tankermen where required by the regulations in this subchapter, separately stated, as called for in her certificate of inspection.

§ 35.05–5 Master required on tankships—T/ALL.

There shall be a duly licensed master on board every tankership of more than 150 gross tons, whenever such tankership is under way.

§ 35.05–10 Pilot required on tankships—T/LBR.

(a) No tankship shall be navigated unless she shall have in her service and on board either a licensed master or

pilot as called for in her certificate of inspection.

(b) The navigation of every tankship above 150 gross tons shall be under the control of a first-class pilot, and every such pilot shall be limited in his license to the particular service for which he is adapted.

(c) A first-class pilot or a second-class pilot who has reached the age of 21 years may act as master or pilot in charge of the navigation of a tank ship not exceeding 150 gross tons. A second-class pilot is authorized to act as pilot in charge of a watch on any tankship within the tonnage specified in his license.

§ 35.05–15 Watchman for a tank vessel—TB/ALL.

(a) *Manned tank vessel.* At least one member of the crew of a manned tank vessel shall be on board at all times except when the vessel is gas free or is moored at a dock or terminal at which watchman service is provided.

(b) *Unmanned barge.* (1) A strict watch of each unmanned barge in tow shall be maintained from the towing vessel while under way.

(2) When a barge is moored but not gas free, at least one of the following precautions shall be taken:

(i) The barge shall be under the observation of a watchman who may be a member of the complement of the towing vessel, or a terminal employee, or other competent person responsible for the security of the barge and for keeping unauthorized persons off the barge; or,

(ii) All cargo tank hatches shall be clearly marked in not less than 3-inch lettering, "DANGER—KEEP OUT," and in addition all hatch covers shall be closed and dogged down, or otherwise secured, by a tool-operated device, such as a length of pipe, so that no person can open the hatch by use of bare hands alone.

§ 35.05–20 Physical condition of crew—TB/ALL.

No person shall be engaged as a member of the crew on a tank vessel if he is known by the employer to be physically or mentally incapable of performing the duties assigned him.

§ 35.05–25 Illness, alcohol, drugs—TB/ALL.

(a) No person, known by the individual in charge of a tank vessel to be under the influence of liquor or oth stimulant, or to be ill to such an exte as to unfit him for any particular servi on the tank vessel, shall be allowed perform such service while in such cond tion.

(b) When a member of the crew a tank vessel which is loading bulk car of Grade A, B, or C arrives at the gan way and is observed to be in an intox cated condition, he shall not be pe mitted to board the vessel without esco

Subpart 35.07—Logbook Entries

§ 35.07–1 Application—TB/ALL.

(a) Except as specifically noted, t provisions of this subpart shall apply all tank vessels.

§ 35.07–5 Logbooks and records—T ALL.

(a) *General—TB/ALL.* Under va ous statutes or by regulations in t subchapter, specified tank vessels sh have certain logbooks or records, a when the occasion arises, it is the du of the master or person in charge place therein specific entries as requi by law or regulations in this subchapt

(b) *Official Logbook—TB/OC.* R 4290, as amended (46 U.S.C. 201), stat "Every vessel making voyages from port in the United States to any forei port, or, being of the burden of 75 to or upward, from a port on the Atlan to a port on the Pacific, or vice ver shall have an Official Logbook; * * This Official Logbook is furnished g tuitously to masters of United Stat flag vessels by the Coast Guard, as Fo CG–706B or CG–706C, depending up the number of persons employed as cr There is printed in the first several pag of this Official Logbook various acts Congress relating to logbooks and t entries required to be made there When a voyage is completed, or af a specified period of time is complet the Official Logbooks with required e tries therein shall be filed with the O cer in Charge, Marine Inspection, at nearest the port where the vessel may

(c) *Logs or records—TB/ALL.* vessels other than those required to ha Official Logbooks by R.S. 4290, the ow ers, operators, and/or masters are supply their own logs or records in a form desired, which will be consider to take the place of the Official Logboo and may be used for the purpose of ma ing entires therein as required by l

r regulations in this subchapter. Such gs or records are not filed with the fficer in Charge, Marine Inspection, but all be kept available for review by a arine inspector for a period of one ear after the date to which the records fer, except for separate records of tests nd inspections of firefighting equip-ent which shall be maintained with the essel's logs for the period of validity the vessels' certificate of inspection.

35.07-10 Actions required to be logged—TB/ALL.

(a) *General—TB/ALL.* The actions nd observations noted in this section all be entered in the Official Logbook in logs or records considered to take lace of the Official Logbooks. This sec-on contains no requirements which are ot made in specific laws or in other gulations in this subchapter, the items ing merely grouped together for con-enience.

(b) *Entries—T/ALL.* Entries shall be ade in the logs of tankships with re-ect to the following:

(1) Fire and lifeboat drills. Weekly. e § 35.10-5.

(2) Electric power-operated lifeboat nches. Once in each three months. e § 35.10-7.

(3) Draft and load line marks. For nkships of 150 gross tons and over, ior to leaving port for ocean, coast-lse, and Great Lakes voyages only. See U.S. Code, sections 85e and 88e, and 35.20-5.

(4) Steering gear tests. Prior to de-arture, or for tank ships on voyages of ss than 48 hours duration or tankships erating on lakes, bays, sounds and vers, once every week. See § 35.20-10.

(5) Fuel oil data. Upon receipt of el oil on board to be used as fuel. See 35.25-10.

(6) Line-throwing appliances. Once ery three months. See § 35.10-1(c).

(7) Inspections and tests of fire-ghting equipment. Once every year. e § 31.10-18 of this subchapter.

(8) Operation and inspection of the ergency lighting and power systems. nce in each week that the vessel is vigated. See § 35.10-15.

(9) Cargo gear inspections: At least ce a month. See § 31.37-70 of this bchapter.

(c) *Entries—B/ALL.* Entries shall be ade in the records for tank barges with spect to the following:

(1) Inspections and tests of firefighting equipment. Once every year. See § 31.10-18 of this subchapter.

(2) Draft and load line marks. For tank barges of 150 gross tons and over, prior to leaving port for ocean, coastwise, and Great Lakes voyages only. See 46 U.S. Code, sections 85e and 88e.

(3) Cargo gear inspections: At least once a month. See § 31.37-70 of this subchapter.

§ 35.07-15 Official log entries—TB/OC.

(a) On vessels where an Official Logbook is required by R.S. 4290 (46 U.S.C. 201), all items relative to the crew and passengers, as well as with respect to any casualties which may occur, shall be entered in the Official Logbook as required by this law.

Subpart 35.10—Fire and Emergency Requirements

§ 35.10-1 Station bills, muster lists, and line-throwing appliance drills—T/ALL.

(a) It shall be the duty of the master of every tankship over 500 gross tons to cause station bills and muster lists to be prepared before the vessel sails, which shall be signed by the master, who shall be responsible for their preparation. The station bills and muster lists shall be posted in conspicuous places in several parts of the tankship, particularly in the crew's quarters, and must contain full particulars of the signals which will be used for calling the crew to their stations for emergency duties. Special duties shall be allotted to each member of the crew and the muster list shall show all these special duties and indicate the station to which each man must go and the duties he has to perform. The special duties should, as far as possible, be comparable to the regular work of the individual.

(b) The duties provided for by the muster lists should include:

(1) The closing of airports, watertight doors, fire doors, and fire screens, the covers and all valves of all scuppers, sanitary and other discharges which lead through the ship's hull below the margin line, and stopping the fans and ventilating systems.

(2) The extinction of fire.

(3) The equipment of lifeboats, liferafts, and buoyant apparatus and their preparation for launching.

(c) The master of a tankship equipped with a line-carrying gun shall drill his crew in its use every 3 months, but the actual firing of the gun on the tankship shall be discretionary with the master. Each drill shall be recorded in the ship's logbook.

§ 35.10–3 Display of plans—TB/ALL.

(a) All self-propelled vessels of more than 100 gross tons and all barges of more than 100 gross tons with sleeping accommodations for more than six persons shall have permanently exhibited for the guidance of the officer in charge of the vessel, general arrangement plans showing for each deck the various fire retardant bulkheads together with particulars of the fire detecting, manual alarm and fire extinguishing systems, fire doors, means of ingress to the different compartments, and the ventilating systems including the positions of the dampers, the location of the remote means of stopping the fans, and the identification of the fans serving each section.

[CGFR 68–32, 33 F.R. 5714, Apr. 12, 1968]

§ 35.10–5 Emergency signals; fire and lifeboat drills—T/ALL.

(a) The fire-alarm signals shall be a continuous blast of the whistle for a period of not less than 10 seconds supplemented by a continuous ringing of the general alarm bells for not less than 10 seconds. For dismissal from fire-alarm stations, the general alarm bells should be sounded three times, supplemented by three short blasts of the whistle. The signal for lifeboat drill or lifeboat stations shall be more than six short blasts and one long blast of the whistle, supplemented by the same signal on the general alarm bells. Where whistle signals are used to direct the handling of lifeboats they shall be as follows:

(1) To lower lifeboats, one short blast of the whistle.

(2) To stop lowering the lifeboats, two short blasts of the whistle.

(3) For dismissal from lifeboat stations, three short blasts of the whistle: *Provided,* That on river tankships the whistle signals specified herein may be made on the ship's bell.

(b) The master of any tankship may establish such other emergency signal, in addition to the above, as will provide that all the officers and all the crew of the tankship will have positive and certain notice of the existing emergency.

(c) The master may organize a squa to be used for emergency duties (oth than a general emergency), or crew pra tices, and the nature of the signals other means for assembling the squa remains within the discretion of th master. Such signals should not confli with the navigational signals or the sig nals used for a general alarm.

(d) It shall be the duty of the Maste or the mate, or officer next in comman to conduct a fire and boat drill at lea once in every week. At least one suc fire and boat drill shall be held within hours of leaving a port if more than percent of the crew have been replace at that port. In connection with the drills it shall be the duty of such offic to call all hands to quarters and (weath permitting) exercise them in the unlash ing and swinging out of the lifeboat the closing of all hand or power operate watertight doors which are in use at se closing all fire doors and fire screens, th use of fire pumps, and all other appa ratus for the safety of life on board such vessels with special regard for th drill of the crew in the method of adjus ing life preservers; to see that all th equipments required by law are in com plete working order for immediate us and to see that lifeboat equipment examined at least monthly to insure tha it is complete. The fact of exercise of th crew as herein contemplated, shall b entered upon the ship's logbook.

(e) The fire and boat drill shall b conducted as if an actual emergency ex isted. All hands should report to thei respective stations and be prepared t perform the duties specified in the sta tion bill.

(1) Fire pumps shall be started an a sufficient number of outlets used t ascertain that the system is in prope working order.

(2) All rescue and safety equipmen shall be brought from the emergenc equipment lockers and the persons des ignated shall demonstrate their abilit to use the equipment.

(3) Weather permitting, lifeboat cov ers and strongbacks shall be remove plugs or caps put in place, boat ladde secured in position, painters led forwar and tended, and other lifesaving equip ment prepared for use. The motor an hand-propelling gear of each lifeboa where fitted, shall be operated for a least 5 minutes.

(4) The passengers, if carried, shall be encouraged to fully participate in these drills and shall be instructed in the use of the life preservers.

(5) In port, every lifeboat shall be swung out, if practicable, and the unobstructed lifeboats shall be lowered to the water and the crew exercised in the use of the oars and other means of propulsion if provided for the lifeboat. Although all lifeboats may not be used in a particular drill, care shall be taken that all lifeboats are given occasional use to ascertain that all lowering equipment is in proper order and the crew properly trained. The Master shall be responsible that each lifeboat is lowered to the water at least once in each 3 months.

(6) When the vessel is underway, and weather permitting, all lifeboats shall be swung out to ascertain that the gear is in proper order.

(7) The person in charge of each lifeboat and liferaft shall have a list of its crew and shall see that the men under his command are acquainted with their duties.

(f) The entries in the ship's logbook relating to the exercise of the crew in fire and lifeboat drills shall state the day of the month and the hour when so exercised, length of time of the drill, numbers on the lifeboats swung out and numbers on those lowered, number of lengths of fire hose used, a statement of the condition of all fire and lifesaving apparatus, and a report of the monthly examination of the lifeboat equipment. If in any week the required fire and boat drills are not held or only partial drills are held, an entry shall be made stating the circumstances and extent of the drills held.

(g) Any neglect or omission on the part of the officer in command of such vessels to strictly enforce the provisions of this section shall be deemed cause for proceedings under the provisions of R.S. 4450, as amended (46 U.S.C. 239), looking to a suspension or revocation of the license of such officer.

(h) It shall be the duty of the master to require the officers and crew of all tankships to perform the aforesaid drills and discipline in the presence of marine inspectors at intervals sufficiently frequent to assure the said inspectors, by actual observance, that the foregoing requirements of this section are complied with by the officers and the crew.

(i) A copy of these requirements (Form CG–809) shall be furnished to each tankship to which this subpart applies. This form shall be framed under glass and posted in a conspicuous place.

[CGFR 65–50, 30 F.R. 16704, Dec. 30, 1965, as amended by CGFR 69–72, 34 F.R. 17482, Oct. 29, 1969]

§ 35.10–7 Electric power-operated lifeboat winches—T/ALL.

(a) It shall be the duty of the master to see that all lifeboat winch control apparatus, including motor controllers, emergency switches, master switches, and limit switches, are examined at least once in each 3 months. The examination shall include the removal of drain plugs and/or the opening of drain valves in such appliances to assure that the enclosures are free of water.

(b) The date of the examination required by this section and the condition of the equipment shall be noted in the Official Logbook.

§ 35.10–9 Posting placards containing instructions for launching and inflating inflatable liferafts—TB/ALL.

(a) Every vessel equipped with inflatable liferafts shall have posted in conspicuous places which are regularly accessible to the crew and/or passengers, approved placards containing instructions for launching and inflating inflatable liferafts for the information of persons on board. The number and location of such placards for a particular vessel shall be as determined necessary by the Officer in Charge, Marine Inspection.

(b) Under the requirements contained in § 160.051–6(c)(1) of Subpart 160.051 in Subchapter Q (Specifications) of this chapter, the manufacturer of approved inflatable liferafts is required to provide approved placards containing such instructions with each liferaft.

§ 35.10–15 Emergency lighting and power systems—T/ALL.

(a) Where fitted, it shall be the duty of the master to see that the emergency lighting and power systems are tested and inspected at least once in each week that the vessel is navigated to be assured that the system is in proper operating condition.

(b) Internal combustion engine driven emergency generators shall be

tested under load for at least 2 hours, at least once in each month that the vessel is navigated.

(c) Storage batteries for emergency lighting and power systems shall be tested at least once in each 6-month period that the vessel is navigated to demonstrate the ability of the storage battery to supply the emergency loads for the period of time specified in Table 112.05–5 (a) of this chapter.

(d) The date of the tests required by this section and the condition and performance of the apparatus shall be noted in the vessel's Official Logbook or in logs or records considered to take the place of the Official Logbook.

[CGFR 65–50, 30 F.R. 16709, Dec. 30, 1965, as amended by CGFR 70–143, 35 F.R. 19905, Dec. 30, 1970]

§ 35.10–20 Radio apparatus for lifeboats—T/OC.

(a) It shall be the duty of the master to require that all batteries for all fixed and portable radio apparatus for lifeboats are brought up to full charge weekly if the batteries are of a type which require recharging.

(b) In any case, the transmitter shall be tested weekly using a suitable artificial aerial.

§ 35.10–25 Emergency position indicating radiobeacon (EPIRB)—T/OC.

The master shall ensure that—

(a) The EPIRB required in § 33.60–1 of this subchapter is tested monthly, using the integrated test circuit and output indicator, to determine that it is operative; and

(b) The EPIRB's battery is replaced after the EPIRB is used and before the date required by FCC regulations in 47 CFR Part 83 to be marked on the outside of the EPIRB.

[CGD 73–24R, 39 FR 10139, Mar. 18, 1974]

Subpart 35.12—Placard of Lifesaving Signals and Breeches Buoy Instructions

§ 35.12–1 Application—T/OCLB.

(a) The provisions of this subpart shall apply to all vessels on an international voyage, and all other vessels of 150 gross tons or over in ocean, coastwise or Great Lakes service.

§ 35.12–5 Availability—T/OCLB.

(a) On all vessels to which this subpart applies there shall be posted in the pilothouse and readily available to the deck officer of the watch a placard (Form CG–811) containing instructions for the use of breeches buoys and the lifesaving signals set forth in Regulation 16, Chapter V, of the International Convention for Safety of Life at Sea, 1960. These signals shall be used by vessels or persons in distress when communicating with lifesaving stations and maritime rescue units.

(b) A copy of Form CG–811 shall also be conveniently posted in the engineroom and crews quarters of all vessels to which this subpart applies.

Subpart 35.15—Casualty or Accident Reports

§ 35.15–1 Notice of casualty and voyage records—TB/ALL.

(a) The owner, agent, master, or person in charge of a vessel involved in a marine casualty shall give notice as soon as possible to the nearest marine inspection office of the United States Coast Guard whenever the casualty results in any of the following:

(1) Damage to property in excess of $1,500.00.

(2) Material damage affecting the seaworthiness or efficiency of a vessel.

(3) Stranding or grounding.

(4) Loss of life.

(5) Injury causing any person to remain incapacitated for a period in excess of 72 hours; except injury to harbor workers not resulting in death and not resulting from vessel casualty or vessel equipment casualty.

(b) The notice required by paragraph (a) of this section shall show the name and official number of the vessel involved, the owner or agent thereof, the nature and probable occasion of the casualty, the locality in which it occurred, the nature and extent of injury to persons and the damage to property.

(c) In addition to the notice required by paragraph (a) of this section, the person in charge of the vessel shall, as soon as possible, report in writing and in person to the Officer in Charge, Marine Inspection, at the port in which the casualty occurred or nearest the port of first arrival: *Provided,* That when from distance it may be incon-

venient to report in person it may be done in writing only. The written report required for personal accident shall be made on Form CG-924E and submitted for each individual injured and each loss of life. For all other vessel casualties the written report shall be made on Form CG-2692.

NOTE: If filed without delay, the Form CG-924E or CG-2692 may also provide the notice required by paragraph (a) of this section.

(d) The owner, agent, master, or other person in charge of any vessel involved in a marine casualty shall retain such voyage records of the vessel as are maintained by the vessel, such as both rough and smooth deck and engineroom logs, bell books, navigation charts, navigation work books, compass deviation cards, gyrocompass records, stowage plans, record of draft, aids to mariners, radiograms sent and received, the radio log and crew and passenger lists. The owner, agent, master, or other officer in charge, shall make those records available to a duly authorized Coast Guard officer or employee for examination upon request.

(e) Whenever a vessel collides with a lightship, buoy, or other aid to navigation under the jurisdiction of the Coast Guard, or is connected with any such collision, it shall be the duty of the person in charge of such vessel to report the accident to the nearest Officer In Charge, Marine Inspection. No report on Form CG-2692 is required unless one or more of the results listed in paragraph (a) of this section occurs.

(f) The master of any nuclear vessel shall immediately inform the Commandant in the event of any accident or casualty to the nuclear vessel which may lead to an environmental hazard. The master shall also immediately inform the competent governmental authority of the country in whose waters the vessel may be in or whose waters the vessel approaches in a damaged condition.

(Interpret or apply R.S. 4450, as amended, secs. 1, 2, 49 Stat. 1544, secs. 13, 17, 54 Stat. 166, as amended, sec. 10, 18 Stat. 128, as amended; 46 U.S.C. 239, 367, 526*l*(c), 526p, 33 U.S.C. 361)

§ 35.15-5 Reports by engineers of accidents involving boilers or machinery—T/ALL.

It shall be the duty of the engineer in charge when an accident occurs to the boilers or machinery tending to render the further use of such boilers and machinery unsafe until repairs are made to report the same to the Officer in Charge, Marine Inspection, at the port in which the accident occurred or nearest the port of first arrival, immediately upon the arrival of the tankship at the first port reached subsequent to the accident.

§ 35.15-10 Reports when a state of war exists—T/ALL.

During the period when a state of war exists between the United States and any foreign nation, communications in regard to casualties or accidents shall be handled with caution and the reports shall not be made by radio or by telegram.

§ 35.15-13 Notice and reports of certain hazardous materials incidents.

(a) The owner, master, agent or person in charge of a vessel subject to the provisions of this subchapter, engaged in the transportation of hazardous materials, is required to report to the nearest District Commander of the Coast Guard immediately by telephone, radiotelephone, or radio message, and subsequently in writing within 15 days of the date of discovery, each incident which occurs on board in which as a direct result of the hazardous materials being transported any of the circumstances set forth in § 2.20-65(b) of this chapter occurs. In addition, the written report is required in the event there has been an unintentional release of bulk hazardous materials under certain conditions and there has been an unintentional release of hazardous materials from a package, container, portable tank, highway or railroad vehicle.

(b) For the definition of hazardous materials and for the detailed requirements of these reports, §§ 2.20-65 and 2.20-70 of this chapter should be consulted.

[CGFR 69-106a, 35 F.R. 16834, Oct. 31, 1970]

Subpart 35.20—Navigation

§ 35.20-1 Notice to mariners; aids to navigation—T/OCLB.

(a) Licensed officers are required to acquaint themselves with the latest information published by the Coast Guard and the U.S. Navy regarding aids to navigation, and neglect to do so is evidence of neglect of duty. It is desirable

that vessels navigating oceans and coastwise and Great Lakes water shall have available in the pilothouse for convenient reference at all times a file of the applicable Notice to Mariners.

(b) Weekly Notices to Mariners (Great Lakes Edition), published by the Commander, 9th Coast Guard District, contain announcements and information on changes in aids to navigation and other marine information affecting the safety of navigation on the Great Lakes. These notices may be obtained free of charge, by making application to Commander, 9th Coast Guard District.

(c) Weekly Notices to Mariners (worldwide coverage) are prepared jointly by the U.S. Naval Oceanographic Office, the U.S. Coast and Geodetic Survey and the U.S. Coast Guard. They include changes in aids to navigation in assembled form for the 1st, 3d, 5th, 7th, Greater Antilles Section, 8th, 11th, 12th, 13th, 14th, and 17th Coast Guard Districts. Foreign marine information is also included in these notices. These notices are available without charge from the U.S. Naval Oceanographic Office, Washington, D.C. 20390, Branch Oceanographic Offices, U.S. Collector of Customs of the major seaports in the United States and are also on file in the U.S. Consulates where they may be inspected.

(d) As appropriate for the intended voyage, all vessels must carry adequate and up-to-date—

(1) Charts;
(2) Sailing directions;
(3) Coast pilots;
(4) Light lists;
(5) Notices to mariners;
(6) Tide tables;
(7) Current tables; and
(8) All other nautical publications necessary.[1]

§ 35.20–5 Draft of tankships—T/OC.

The master of every tankship shall, whenever leaving port, enter the maximum draft of his vessel in the logbook.

§ 35.20–10 Steering gear test—T/ALL.

On all tankships making voyages of more than 48 hours' duration, the entire steering gear, the whistle, the means of communication, and the signaling appliances between the bridge or pilothouse and engineroom shall be examined and tested by a licensed officer of the vessel within a period of not more than 12 hours before leaving port. All such vessels making voyages of less than 48 hours' duration or operating on lakes bays, sounds, and rivers shall be so examined and tested at least once in every week. The fact and time of such examination and test shall be recorded in the ship's logbook.

§ 35.20–15 Steering orders—TB/ALL.

(a) For all tank vessels fitted with rudders, the following steering orders shall be given in the direct sense as follows:

(1) "Right rudder" shall be given only when it is intended that the wheel the rudder blade, and the head of the ship should go to the right.

(2) "Left rudder" shall be given only when it is intended that the wheel, the rudder blade, and the head of the ship should go to the left.

(b) Where rudder indicators are provided, they shall be installed consistent with the requirements in paragraph (a) of this section.

§ 35.20–20 Master's and officer's responsibility—TB/ALL.

Nothing in this part shall exonerate any master or officer in command from the consequences of any neglect to keep a proper lookout or the neglect of any precaution which may be required by the ordinary practice of seamen or by the special circumstances of the case.

§ 35.20–25 Unauthorized lights—TB/ALL.

Any master or pilot of any vessel who shall authorize or permit the carrying of any light, electric or otherwise not required by law that in any way will interfere with distinguishing the signal lights may be proceeded against in accordance with the provisions of R. S. 4450 (46 U.S.C. 239), as amended, looking to a revocation or suspension of his license.

§ 35.20–30 Flashing the rays of searchlight or other blinding light—T/ALL.

Flashing the rays of a searchlight or other blinding light onto the bridge or into the pilothouse of any vessel under way is prohibited. Any person who shall flash or cause to be flashed the rays of a blinding light in violation of the above may be proceeded against in accordance with the provision of R. S. 4450, as amended (46 U.S.C. 239), looking to the revocation or suspension of his license or certificate.

§ 35.20–35 Whistling—T/ALL.

Unnecessary sounding of vessel's whistle is prohibited within any harbor limits of the United States. Whenever any licensed officer in charge of any tankship shall authorize or permit such unnecessary whistling, such officer may be proceeded against in accordance with the provisions of R. S. 4450, as amended (46 U.S.C. 239), looking to a revocation or suspension of his license.

§ 35.20–40 Maneuvering characteristics—T/OC.

For each ocean and coastwise tankship of 1,600 gross tons or over, the following apply:

(a) The following maneuvering information must be prominently displayed in the pilothouse on a fact sheet:

(1) For full and half speed, a turning circle diagram to port and starboard that shows the time and the distance of advance and transfer required to alter the course 90 degrees with maximum rudder angle and constant power settings.

(2) The time and distance to stop the vessel from full and half speed while maintaining approximately the initial heading with minimum application of rudder.

(3) For each vessel wth a fixed propeller, a table of shaft revolutions per minute for a representative range of speeds.

(4) For each vessel with a controllable pitch propeller a table of control settings for a representative range of speeds.

(5) For each vessel that is fitted with an auxiliary device to assist in maneuvering, such as a bow thruster, a table of vessel speeds at which the auxiliary device is effective in maneuvering the vessel.

(b) The maneuvering information must be provided for the normal load and normal ballast condition for—

(1) Calm weather—wind 10 knots or less, calm sea;

(2) No current;

(3) Deep water conditions—water depth twice the vessel's draft or greater; and

(4) Clean hull.

(c) At the bottom of the fact sheet, the following statement must appear:

WARNING

The response of the (name of the vessel) may be different from those listed above if any of the following conditions, upon which the maneuvering information is based, are varied:

(1) Calm weather—wind 10 knots or less, calm sea;

(2) No current;

(3) Water depth twice the vessel's draft or greater;

(4) Clean hull; and

(5) Intermediate drafts or unusual trim.

(d) The information on the fact sheet must be:

(1) Verified six months after the vessel is placed in service; or

(2) Modified six months after the vessel is placed into service and verified within three months thereafter.

(e) The information that appears on the fact sheet may be obtained from:

(1) Trial trip observations;

(2) Model tests;

(3) Analytical calculations;

(4) Simulations;

(5) Information established from another vessel of similar hull form, power, rudder and propeller; or

(6) Any combination of the above.

The accuracy of the information in the fact sheet required is that attainable by ordinary shipboard navigation equipment.

(f) The requirements for information for fact sheets for specialized craft such as semi-submersibles, hydrofoils, hovercraft and other vessels of unusual design will be specified on a case by case basis.

[CGD 73–78. 40 FR 2689, Jan. 15, 1975]

§ 35.20–45 Use of Auto Pilot—T/ALL.

Except as provided in 33 CFR 164.15, when the automatic pilot is used in—

(a) Areas of high traffic density;

(b) Conditions of restricted visibility; and

(c) All other hazardous navigational situations, the master shall ensure that—

(1) It is possible to immediately establish manual control of the ship's steering;

(2) A competent person is ready at all times to take over steering control; and

(3) The changeover from automatic to manual steering and vice versa is made by, or under, the supervision of the officer of the watch.

Subpart 35.25—Engine Department

§ 35.25–1 Examination of boilers and machinery by engineer—T/ALL.

It shall be the duty of an engineer when he assumes charge of the boilers and machinery of a vessel to examine the same forthwith and thoroughly. If the finds any part thereof in bad condition, he shall immediately report the facts to the master, owner, or agent, and to the nearest Officer in Charge, Marine Inspection, who shall thereupon investigate the matter, and if the former engineer has been willfully negligent in the performance of his duties, he may be proceeded against under the provisions of R.S. 4450, as amended (46 U.S.C. 239), looking to a suspension or revocation of his license.

§ 35.25–5 Repairs of boilers and unfired pressure vessels and reports of repairs or accidents by chief engineer—TB/ALL.

(a) Before making any repairs to boilers or unfired pressure vessels, the chief engineer shall submit a report covering the nature of the repairs to the Officer

in Charge, Marine Inspection, at or nearest to the port where the repairs are to be made.

(b) In the event of an accident to a boiler, unfired pressure vessel, or machinery tending to render the further use of the item itself unsafe until repairs are made, or if by ordinary wear such items become unsafe, a report shall be made by the chief engineer immediately to the Officer in Charge, Marine Inspection, or if at sea, immediately upon arrival at port.

§ 35.25-10 Requirements for fuel oil—T/ALL.

(a) Oil to be used as fuel to be burned under boilers on tankships shall have a flashpoint of not less than 140° F. (Pensky-Martens Closed Cup Method, ASTM D 93).

(b) It shall be the duty of the chief engineer to make an entry in the log of each supply of fuel oil received on board, stating the quantity received, the name of the vendor, the name of the oil producer, and the flashpoint (Pensky-Martens Closed Cup Method, ASTM D 93) for which it is certified by the producer.

(c) It shall be the further duty of the chief engineer to draw and seal at the time the supply is received on board, a half-pint sample of each lot of fuel oil, such sample to be preserved until that particular supply of oil is exhausted.

[CGFR 65-50, 30 F.R. 16704, Dec. 30, 1965, as amended by CGFR 68-82, 33 F.R. 18805, Dec. 18, 1968; CGD 73-254, 40 FR 40163, Sept. 2, 1975]

§ 35.25-15 Carrying of excess steam—TB/ALL.

It shall be the duty of the chief engineer of any tank vessel to see that a steam pressure is not carried in excess of that allowed by the certificate of inspection, and to see that the safety valves, once set and sealed by the inspector are in no way tampered with or made inoperative except as provided in § 35.25-20.

§ 35.25-20 Breaking of safety valve seal—TB/ALL.

If at any time it is necessary to break the seal on a safety valve for any purpose, the chief engineer shall advise the Officer in Charge, Marine Inspection, at the next port of call, giving the reason for breaking the seal and requesting that the valve be examined and adjusted by a marine inspector.

Subpart 35.30—General Safety Rules

§ 35.30-1 Warning signals and signs—TB/ALL.

(a) *Red warning signals.* During transfer of bulk cargo while fast to a dock, a red signal (flag by day and electric lantern at night) shall be so placed that it will be visible on all sides. While transferring bulk cargo at anchor, a red flag only shall be displayed.

(b) *Warning sign at gangway.* (1) A sign shall be displayed to warn persons approaching the gangway, while a vessel is moored or anchored unless it is empty and gas-freed. The sign shall state in letters not less than 2 inches high substantially as follows:

WARNING

No open lights.
No smoking.
No visitors.

(2) Where poisonous cargoes are being transferred the warning sign shall also include the word "Poison" to indicate the nature of the liquid being handled. (See Part 39 of this subchapter.)

(c) *Warning sign in radio room.* A sign shall be placed in radio room warning against the use of radio equipment during transfer of Grade A, B, or C liquids, except by permission of senior deck officer.

(d) Additional warning signs required by cargoes having significant hazards other than flammability or combustibility are described in § 35.01-55.

(e) Additional placards or signs required in connection with the movement of certain open hopper type barges are described in § 35.01-45.

[CGFR 65-50, 30 F.R. 16704, as amended by CGFR 70-143, 35 F.R. 19905, Dec. 30, 1970]

§ 35.30-5 Fires, matches, and smoking—TB/ALL.

(a) *General.* In making the determinations required under paragraphs (b), (c), and (d) of this section the senior deck officer on duty, who shall be a licensed officer or certificated tankerman, shall exercise his skill and experience with due regard to attendant conditions and circumstances, including consideration for location of shore side facilities, maintenance of mobility, provision for fire protection, state or change of winds, tides, sea, weather conditions

forces of nature and other circumstances generally beyond human control.

(b) *Boiler fires.* Boiler fires are normally permitted during cargo transfer operations: *Provided,* That prior to loading Grades A, B, and C cargoes, the senior deck officer on duty, who shall be a licensed officer or certificated tankerman, shall make an inspection to determine whether in his judgment boiler fires may be maintained with reasonable safety during the loading operation.

(c) *Galley fires.* Galley fires are normally permitted during cargo transfer operations: *Provided,* That prior to loading Grades A, B, and C cargoes the senior deck officer on duty, who shall be a licensed officer or certificated tankerman, shall make an inspection to determine whether in his judgment galley fires may be maintained with reasonable safety during the loading operation.

(d) *Smoking.* Smoking is prohibited on the weather decks of tank vessels when they are not gas free or are alongside docks. At other times and places the senior deck officer on duty, who shall be a licensed officer or certificated tankerman, shall designate when and where the crew may smoke: *Provided,* That prior to loading Grade A, B, or C cargo the master or senior deck officer on duty shall make an inspection to determine if and where, in his judgment, smoking may be permitted with reasonable safety during the loading operation.

(e) *Matches.* The use of other than safety matches is forbidden aboard tank vessels at all times.

§ 35.30-10 Cargo tank hatches, ullage holes, and Butterworth plates—TB/ALL.

No cargo tank hatches, ullage holes, or Butterworth plates shall be opened or shall remain open without flame screens, except under the supervision of the senior members of the crew on duty, unless the tank opened is gas free.

§ 35.30-15 Combustible gas indicator—TB/ALL.

(a) The provisions of this section shall apply only to United States flag vessels.

(b) Manned tank barges and tankships authorized to carry Grade A, B, C, or D liquids at any temperature, or Grade E liquids at elevated temperatures, shall be provided with a combustible gas indicator suitable for determining the presence of explosive concentrations of the cargo carried. An indicator which bears the label of Underwriters' Laboratories Inc., Factory Mutual Engineering Division, or other organizations acceptable to the Commandant will be accepted as meeting this requirement.

§ 35.30-20 Emergency equipment TB/ALL

(a) Two emergency outfits, stored for use in widely separated, accessibe locations, are required for the following:

(1) All tankships on international voyage.

(2) All tankships over 1,000 gross tons.

(3) All tankships having cargo tanks which exceed 15 feet in depth, measured from the deck to the lowest point at which cargo is carried.

(b) One emergency outfit is required for all manned tank barges having cargo tanks which exceed 15 feet in depth, measured from the deck to the lowest point at which cargo is carried.

(c) Each emergency outfit shall be equipped as follows:

(1) One approved fresh air breathing apparatus including belt and lifeline. The length of the air hose shall be sufficient to reach from the open deck, well clear of hatch or doorway, to any part of the holds, tanks, and except as provided in the following subparagraph, the machinery spaces.

(2) If it is not practicable to reach all portions of the machinery space with the airhose of the fresh air breathing apparatus, an approved self-contained breathing apparatus with adequate lifeline shall be carried for use in the machinery space. In such case, the particular apparatus provided for the machinery space shall be used for no other purpose, shall be marked indicating the restriction to its use, and shall be stowed convenient to, but outside of the machinery space.

(3) One approved 3-cell, explosion-proof flashlight constructed in accordance with subpart 161.008 of subchapter Q (specifications) of this chapter.

(4) One fire ax.

(5) Boots and gloves of rubber or other electrically nonconducting material.

(6) A rigid helmet which provides effective protection against impact.

(7) Protective clothing of material that will protect the skin from the heat

of fire and burns from scalding steam. The outer surface shall be water resistant.

(d) Approved self-contained breathing apparatus with adequate lifelines may be provided in addition to the equipment required in the preceding paragraph, and may be used in any space on the vessel.

(e) Lifelines shall be of steel or bronze wire rope. Steel wire rope shall be either inherently corrosion resistant or made so by galvanizing or tinning. Each end shall be fitted with a hook with keeper having a throat opening which can be readily slipped over a $\frac{5}{8}$-inch bolt. The total length of the lifeline shall be dependent upon the size and arrangement of the vessel, and more than one line may be hooked together to achieve the necessary length. No individual length of lifeline may be less than 50 feet in length. The assembled lifeline shall have a minimum breaking strength of 1,500 pounds.

[CGD 73-11R, 38 FR 27354, Oct. 3, 1973]

§ 35.30-25 Explosives—TB/ALL.

Fulminates or other detonating compounds in bulk in dry condition; explosive compositions that ignite spontaneously or undergo marked decomposition when subjected for forty-eight consecutive hours to a temperature of 167° F. or more; composition containing an ammonium salt and a chlorate; and other like explosives shall not be accepted, stored, stowed or transported on board tank vessels.

§ 35.30-30 Portable electrical equipment—TB/ALL.

Illumination may be obtained in any compartment by the use of approved explosion-proof, self-contained, battery-fed lamps. Otherwise, no portable electrical equipment of any type shall be used in bulk cargo tanks, fuel oil tanks, cargo pumprooms, or enclosed spaces immediately above or adjacent to bulk cargo tanks unless all the following conditions are met:

(a) The compartment itself is gas-free;

(b) The compartments adjacent and the compartments diagonally adjacent are either (1) gas-free, (2) inerted, (3) filled with water, (4) contain Grade E liquid and are closed and secured, or (5) are spaces in which flammable vapors and gases normally are not expected to accumulate; and

(c) All other compartments of the vessel in which flammable vapors and gases may normally be expected to accumulate are closed and secured.

§ 35.30-35 Spark producing devices—TB/ALL.

(a) Where Grades A, B, C, and D liquid cargoes are involved, power driven or manually operated spark producing devices shall not be used in bulk cargo tanks, fuel oil tanks, cargo pumprooms or enclosed spaces immediately above or adjacent to bulk cargo tanks unless all the following conditions are met:

(1) The compartment itself is gas-free;

(2) The compartments adjacent and the compartments diagonally adjacent are either (i) gas-free, (ii) inerted, (iii) filled with water, (iv) contain Grade E liquid and are closed and secured, or (v) are spaces in which flammable vapors and gases normally are not expected to accumulate; and,

(3) All other compartments of the vessel in which flammable vapors and gases may normally be expected to accumulate are closed and secured.

(b) This section does not prohibit the use of small hand tools in such locations

§ 35.30-40 Flammable liquid and gas fuels as ship's stores—TB/ALL.

(a) Flammable liquids and gases to be used as fuels for industrial trucks, lifeboats and other approved equipment shall be marked, labeled and stowed as follows:

(1) They shall be stowed in ICC specification containers, A.S.M.E. containers or portable safety containers having the approval of a recognized testing laboratory, which containers are authorized for the contents.

(2) Containers shall be marked with the name of contents and shall be labeled in accordance with ICC requirements as follows:

(i) Flammable liquids—"Red Label" or,

(ii) Flammable gases—"Red Gas label",

(3) Containers shall be stowed on or above the weather deck in locations designated by the master. ICC specification containers, A.S.M.E. containers, or portable safety containers having the

approval of a recognized testing laboratory may be stowed below the weather deck in a paint or lamp locker provided such containers do not exceed 5 gallons capacity each.

(b) Diesel fuel shall be stowed in locations designated by the master.

§ 35.30–45 Motion picture film—TB/ALL.

(a) Only acetate or slow-burning film may be used. Nitrocellulose film is specifically prohibited.

Subpart 35.35—Cargo Handling

§ 35.35–1 Men on duty—TB/ALL.

(a) A sufficient number of the crew shall be on duty to perform cargo transfer operations.

(b) In the case of unmanned barges, the owners, masters or persons in charge of such barges shall insure that a person holding a valid license as master mate, pilot, or engineer, or a certificated tankerman is on duty to perform transfer operations, which licensed person or certificated tankerman shall be considered as the person in charge of the unmanned tank barge. Where the bulk liquid cargo to be transferred is covered by the requirements of § 35.01–55, the Officer in Charge, Marine Inspection, shall be furnished satisfactory documentary evidence that such person is trained in, and capable of performing competently, the necessary operations which relate to the transfer of such cargo.

(c) The certificated tankerman in charge of an unmanned barge shall insure that the approved portable extinguishers required by Table 34.50–10(a) of this chapter are on board and are readily available, prior to the transfer of cargo, or operation of barge machinery or boilers.

[CGFR 65–50, 30 F.R. 16712, Dec. 30, 1965, as amended by CGFR 70–143, 35 F.R. 19905, Dec. 30, 1970]

§ 35.35–5 Electric bonding—TB/ALL.

A tank vessel may be electrically connected to the shore piping, through which the cargo is to be transferred, prior to the connecting of a cargo hose. This electrical connection, if made, shall be maintained until after the cargo hose has been disconnected, and any spillage has been removed.

[CGFR 65–50, 30 F.R. 16704, Dec. 30, 1965, as amended by CGFR 66–33, 31 F.R. 15268, Dec. 6, 1966]

§ 35.35–10 Closing of scuppers and sea valves—TB/ALL.

Deck officer in charge shall see that all scuppers are properly plugged during transfer operations except on tank vessels using water for deck cooling. Sea valves shall be closed and lashed, or sealed to indicate that they should not be open during all cargo loading operations. Under no circumstances shall such valves be secured by locks.

§ 35.35–15 Connecting for cargo transfer—TB/ALL.

(a) Movement of the vessel shall be considered when making the cargo connections to insure safe cargo transfer. Suitable material shall be used in joints and in couplings when making connections to insure that they are tight. Under no circumstances shall less than three bolts be used in a bolted flanged coupling.

(b) When cargo connections are supported by ship's tackle, the senior deck officer on duty shall determine the weights involved in order to insure that sufficient tackles are used.

(c) Pans or buckets shall be placed under cargo hose connections on the tank vessel.

§ 35.35–20 Inspection prior to transfer of cargo—TB/ALL.

Prior to the transfer of cargo, the senior deck officer on duty, who shall be a licensed officer or certificated tankerman, shall inspect the vessel to assure himself that the following conditions exist:

(a) Warnings are displayed as required.

(b) No repair work in way of cargo spaces is being carried on without his permission.

(c) Cargo connections have been made as described in § 35.35–15 and cargo valves are set.

(d) All cargo connections for the loading of Grades A, B, and C cargoes have been made to the vessel's pipelines and not through open end hose in a hatch.

(e) In loading Grades A, B, and C cargoes, there are no fires or open flames present on the deck, or in any compartment which is located on, facing, open, and adjacent to that part of the deck on which cargo connections have been made.

(f) The shore terminal or the other tank vessel concerned has reported itself in readiness for transfer of cargo.

(g) All sea valves connected to the cargo piping system are closed.

(h) In loading Grades A, B, and C cargoes, that an inspection has been made to determine whether boiler fires can be maintained with reasonable safety.

(i) In loading Grades A, B, and C cargoes, that an inspection has been made to determine whether galley fires can be maintained with reasonable safety.

(j) In loading Grades A, B, and C cargoes, that an inspection has been made to determine whether smoking may be permitted with reasonable safety.

(k) On tankships the construction or conversion of which is started on or after July 1, 1951, which are to load or discharge Grade A cargo, all openings in the top of the tanks, except the branch vent lines and covers to ullage hole sounding pipes, are tightly closed. (See §§ 32.20–20 and 32.55–20 of this subchapter.)

(l) On tankships the construction or conversion of which is started on or after July 1, 1951, which are to load or discharge Grade A cargo, the method for determining the liquid level in the tank without opening ullage holes, cargo hatches or Butterworth plates is in proper order. (See § 32.20–20 of this subchapter.)

§ 35.35–25 Approval to start transfer of cargo—TB/ALL.

When the senior deck officer on duty has assured himself that the requirements of §§ 35.35–20 and 35.35–30 have been met, he may give his approval to start operations.

§ 35.35–30 "Declaration of Inspection" for tankships—T/ALL.

After completing the inspection required by § 35.35–20 and prior to giving his approval to start the cargo transfer operation, the master or senior deck officer on duty shall fill in the following Declaration of Inspection in duplicate. The orginial of the Declaration of Inspection shall be kept aboard for the information of authorized persons. The duplicate, where required, shall be handed to the terminal superintendent or his representative, who shall on demand be given the opportunity to satisfy himself that the condition of the vessel is as stated in the Declaration of Inspection.

DECLARATION OF INSPECTION PRIOR TO BULK CARGO TRANSFER

Date_____

S _____ Port of _____

I, _____, being the master or senior deck officer in charge of the transfer of bulk flammable and combustible cargo about to be undertaken, do certify that I have personally inspected this vessel with reference to the following requirements set forth in § 35.35–20 and that opposite each of them I have indicated that the regulations have been complied with.

(1) Are warnings displayed as required?

(2) Is there any repair work in way of cargo spaces being carried on for which permission has not been given?

(3) Have cargo connections been properly made and are cargo valves properly set?

(4) Have all cargo connections for loading Grades A, B, and C cargoes been made to vessel's pipelines?

(5) Are there any fires or open flames present on the deck or in any compartment which is located on, facing, open and adjacent to the main deck of the vessels on which the cargo connections have been made?

(6) Has the shore terminal or other tank vessel concerned reported itself in readiness for transfer of cargo?

(7) Are sea valves connected to the cargo system closed?

(8) If Grades A, B, and C cargoes are to be loaded and boiler fires are lighted, has an inspection been made to determine that they may be operated with reasonable safety?

(9) If Grades A, B and C cargoes are to be loaded and galley fires are lighted, has an inspection been made to determine that they may be operated with reasonable safety?

(10) If Grades A, B, and C cargoes are to be loaded, has an inspection been made to determine whether smoking is to be permitted?

(11) If smoking is to be permitted, have spaces been designated for this purpose?

§ 35.35–35 Duties of senior deck officer during transfer operations—TB/ALL.

The senior deck officer on duty shall control the operations as follows:

(a) Supervise the operations of cargo system valves.

(b) Start transfer of cargo slowly.

(c) Observe cargo connections for leakage.

(d) Observe operating pressure on cargo system.

(e) Observe rate of loading for the purpose of avoiding overflow of tanks.

§ 35.35–40 Conditions under which transfer operations shall not be commenced or if started shall be discontinued—TB/ALL.

Cargo transfer operations shall not be started or, if started, shall be discontinued under the following conditions:

(a) During severe electrical storms.

(b) If a fire occurs on the wharf or on the tanker or in the vicinity.

§ 35.35–42 Restrictions on vessel coming alongside a tank vessel while loading Grade A, B, or C cargo—TB/ALL.

(a) No vessel shall come alongside or remain alongside a tank vessel in way of its cargo tanks while it is loading Grade A, B, or C cargo without having the permission of the officer-in-charge of the vessel which is loading.

(b) No vessel shall come alongside or remain alongside a tank vessel in way of its cargo tanks while it is loading Grade A, B, or C cargo unless the conditions then prevailing are mutually acceptable to the officers-in-charge of cargo handling on both vessels.

§ 35.35–45 Auxiliary steam, air, or electric current—B/ALL.

When discharging cargo from one or more barges, the towing vessel may furnish steam, air, or electric current for pumps on barges or dock, but in no case shall the cargo pass through or over the towing vessel.

§ 35.35–50 Termination of transfer operations—TB/ALL.

(a) When transfer operations are completed the valves on cargo connections on the vessel shall be closed. The cargo connections shall be drained of cargo.

§ 35.35–55 Transfer of other cargo or stores on tank vessels—TB/ALL.

(a) Package goods, freight, and ships' stores shall not be loaded or discharged during the loading of Grade A, B, or C products except by permission of the senior deck officer on duty. Explosives as cargo shall not be loaded or carried on any tank vessel containing Grade A, B, or C cargo.

(b) Where package and general cargo is carried directly over bulk cargo tanks, it shall be properly dunnaged to prevent chafing of metal parts and securely lashed or stowed.

§ 35.35–60 Transportation of other cargo or stores on tank barges—B/ALL.

(a) Tank barges may be permitted to transport deck cargoes directly over bulk cargo spaces when the nature of such deck cargoes and the methods of loading and unloading same do not create an undue hazard. Such tank barges shall have their decks properly dunnaged to prevent chafing between the steel parts of the vessel and the deck cargo.

§ 35.35–70 Maintenance of cargo handling equipment—TB/ALL.

The cargo handling equipment shall be maintained by the tank vessel's personnel in accordance with the regulations in this subchapter, including the following:

(a) Cargo hose shall not be used in transfer operations in which the pressures are such that leakage of cargo occurs through the body of the hose.

(b) Cargo pump relief valves shall be tested at least once each year to determine that they function satisfactorily at the pressure at which they are set to open.

(c) Cargo pump pressure gage shall be tested at least once a year for accuracy.

(d) The cargo discharge piping of all tank vessels shall be tested at least once each year for tightness, at the maximum working pressure.

§ 35.35–75 Emergencies—TB/ALL.

In case of emergencies nothing in the regulations in this subchapter shall be construed as preventing the senior officer present from pursuing the most effective action in his judgment for rectifying the conditions causing the emergency.

§ 35.35–85 Air Compressors—TB/ALL.

(a) No person may operate an air compressor in a cargo area described in § 32.35–15 of this subchapter.

(b) The owner of a vessel that has an air compressor or an air compressor intake in a cargo area described in § 32.35–15 of this subchapter must have the equipment made permanently inoperative or removed from that location at the next drydocking or inspection for certification of the vessel after June 15, 1977.

whichever occurs first. The equipment may not be reinstalled thereafter in a cargo area described in § 32.35–15 of this subchapter.

Subpart 35.40—Marking of Fire and Emergency Equipment

§ 35.40–1 General alarm contact maker—TB/ALL.

Each general alarm bell contact maker located as required in § 32.25–1 (b) shall be marked with lettering on a corrosion-resistant plate, or with a sign in red letters on a suitable background with the words "GENERAL ALARM."

§ 35.40–5 General alarm bells—TB/ALL.

General alarm bells shall be marked in not less than ½-inch red letters: "General Alarm—When Bell Rings Go to Your Station."

§ 35.40–6 Emergency lights—TB/ALL.

(a) All emergency lights shall be marked with a letter "E" at least ½ inch high.

§ 35.40–7 Carbon dioxide alarm—T/ALL.

Adjacent to all carbon dioxide fire extinguishing alarms installed after November 19, 1952, there shall be conspicuously marked: "WHEN ALARM SOUNDS VACATE AT ONCE. CARBON DIOXIDE BEING RELEASED."

§ 35.40–10 Steam, foam, or CO_2 fire smothering apparatus—TB/ALL.

Steam, foam, or CO_2 fire smothering apparatus shall be marked "STEAM FIRE APPARATUS" or "FOAM FIRE APPARATUS" or "CO_2 FIRE APPARATUS," as appropriate, in not less than 2-inch red letters. The valves of all branch pipes leading to the several compartments shall be distinctly marked to indicate the compartments or parts of the vessel to which they lead.

§ 35.40–15 Fire hose stations—TB/ALL.

At each fire hose valve there shall be marked in not less than 2-inch red letters and figures: "FIRE STATION 1," 2, 3, etc.

§ 35.40–17 Foam hose/monitor stations—T/ALL.

(a) At each required foam hose/monitor valve there shall be marked in not less than 2-inch red letters and figures: "FOAM STATION 1," 2, 3, etc.

§ 35.40–18 Water spray systems—TB/ALL.

(a) Water spray system apparatus shall be marked: "WATER SPRAY SYSTEM," as appropriate, in not less than 2-inch red letters.

(b) The control valve, and its control if located remotely, shall be distinctly marked to indicate the compartment protected.

§ 35.40–20 Emergency equipment—TB/ALL.

Lockers or spaces where emergency equipment is stowed shall be marked "EMERGENCY EQUIPMENT" or "FRESH AIR BREATHING APPARATUS" as appropriate.

§ 35.40–25 Fire extinguishers—TB/ALL.

Each fire extinguisher shall be marked with a number and the location where stowed shall be marked in corresponding numbers in at least ½ inch figures.

§ 35.40–30 Instructions for changing steering gear—TB/ALL.

Instructions in at least ½ inch letters and figures shall be posted in the steering engineroom, relating in order, the different steps to be taken in changing to the emergency steering gear. Each clutch, gear wheel, lever, valve or switch which is used during the changeover shall be numbered or lettered on a brass plate or painted so that the markings can be recognized at a reasonable distance. The instructions shall indicate each clutch or pin to be "in" or "out" and each valve or switch which is to be "opened" or "closed" in shifting to any means of steering for which the vessel is equipped. Instructions shall be included to line up all steering wheels and rudder amidship before changing gears.

§ 35.40–35 Rudder orders—TB/ALL.

At all steering stations, there shall be installed a suitable notice on the wheel or device or in such other position as to be directly in the helmsman's line of vision, to indicate the direction in which the wheel or device must be turned for "right rudder" or "left rudder."

§ 35.40–40 Vessel's name on equipment—TB/ALL.

(a) The equipment of all tank vessels such as fire hose, fire axes, lifeboats, liferafts, life preservers, EPIRB, and buoyant apparatus, shall be painted or branded with the name of the vessel upon which they are used, except that inflatable liferafts shall be marked in accordance with § 33.25–10.

(b) For vessels on an international voyage, in addition to other markings required, the port of registry of the vessel shall be marked on all lifeboats, rigid liferafts, buoyant apparatus, and ring life buoys. On lifeboats, the name of the vessel and the port of registry shall be marked on each side of the bow.

[CGFR 65–50, 30 FR 16704, Dec. 30, 1965, as amended by CGD 73–24R, 39 FR 10139, Mar. 18, 1974]

Subpart 35.70—Power-Operated Industrial Trucks

§ 35.70-1 Application—TB/ALL.

(a) *Power-operated industrial trucks.* (1) Power-operated industrial trucks when carried on board vessels as part of the vessel's equipment for handling materials of any kind shall be in compliance with the applicable provisions of this subpart.

(2) Power-operated industrial trucks placed on board vessels for handling materials of any kind shall be in compliance with the applicable provisions of this subpart when such vessels are within the navigable waters of the United States, its territories and possessions but not including the Panama Canal Zone.

(b) *Vessels.* (1) Vessels shall be in compliance with the applicable provisions of this subpart during those periods of time when power-operated industrial trucks are on board as a part of the vessel's equipment or when such trucks are placed on board for handling materials of any kind.

NOTE: As set forth in § 30.01-5(e), the regulations in this subpart are also applicable to foreign flag tank vessels.

§ 35.70-3 Alternates—TB/ALL.

(a) In cases of undue hardship resulting from unavoidable delays in bringing existing power-operated industrial trucks into compliance with the applicable provisions of this subpart, the Commandant may permit the use of alternate equipment, apparatus, or arrangement for such period of time, and to such extent, and upon such conditions as will assure, to the Commandant's satisfaction, a degree of safety consistent with the minimum standards as set forth in this subpart.

(b) The methods and procedures adopted in connection with the modification of existing equipment to meet required laboratory designations will be taken into consideration in granting permission to use alternate arrangements for a limited period of time.

§ 35.70-5 Definitions of terms used in subpart—TB/ALL.

(a) Power-operated industrial trucks are considered to be tractors, lift trucks and other specialized industrial trucks used for material handling on board a vessel.

(b) For the purposes of the regulations in this subpart, the words "flammable" and "inflammable" are interchangeable or synonymous terms.

§ 35.70-7 Approved power-operated industrial trucks—TB/ALL.

(a) Where approved power-operated industrial trucks are required by the regulations in this subchapter, such approved trucks shall have a specific designation of a recognized testing laboratory except in cases of trucks powered by compressed air. The following laboratories are recognized for the specific type designations listed:

(1) Underwriters' Laboratories, Inc. (Mailing address, P.O. Box 247, Northbrook, Ill. 60062) for trucks having recognized testing laboratory type designations E, EE, EX, G, GS, LP, LPS, D, and DS.

(2) Factory Mutual Laboratories, Engineering Division, 1115 Boston-Providence Turnpike, Norwood, Mass. 02062, for trucks having recognized testing laboratory type designations E, EE, EX, G, GS, LP, LPS, D, and DS.

(b) Trucks powered by compressed air which is received through a flexible hose from a fixed source and having the air supply hose of the grounded type shall be considered of the approved type for purposes of this subpart.

(c) Description of recognized testing laboratory type designations are as follows:

(1) The "E" designated units are electrically powered units that have minimum acceptable safeguards against inherent fire hazards.

(2) The "EE" designated units are electrically powered units that have, in addition to all of the requirements for the "E" units, the electric motors and all other electrical equipment completely enclosed. In certain locations the "EE" unit may be used where the use of an "E" unit may not be considered safe.

(3) The "EX" designated units are electrically powered units that differ from the "E" and "EE" units in that the electrical fittings and equipment are so designed, constructed and assembled that the units may be used in certain atmospheres containing flammable vapors or dusts.

(4) The "G" designated units are gasoline powered units having minimum acceptable safeguards against inherent fire hazards.

(5) The "GS" designated units are gasoline powered units that are provided with additional safeguards to the

exhaust, fuel and electrical systems. They may be used in some locations where the use of a "G" unit may not be considered safe.

(6) The "LP" designated units are similar to the "G" units except that they are liquefied petroleum gas engine powered instead of gasoline powered.

(7) The "LPS" designated units are units similar to the "GS" units except that liquefied petroleum gas is used for fuel instead of gasoline.

(8) The "D" designated units are units similar to the "G" units except that they are diesel engine powered instead of gasoline engine powered.

(9) The "DS" designated units are diesel powered units that are provided with additional safeguards to the exhaust, fuel and electrical systems. They may be used in some locations where a "D" unit may not be considered safe.

(d) In addition to the construction and design safety features required in order to obtain a recognized laboratory type designation, approved power-operated industrial trucks shall have at least the following minimum safety features where applicable.

(1) Power-operated industrial trucks shall be equipped with a warning horn, whistle, or gong, or other device that can be heard clearly above the normal shipboard noises.

(2) Wherever power-operated industrial truck operation exposes the operator to danger from falling objects, the truck shall be equipped with a driver's overhead guard. Where overall height of the truck with forks in the lowered position is limited by head room conditions the overhead guard may be omitted.

NOTE: This overhead guard is only intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application. It is impractical to build a guard of sufficient strength to withstand the impact of a capacity load since such a guard would constitute a safety hazard because its structure would be so large that it might interfere with good visibility and would weigh so much that it might make the truck top-heavy and unstable.

(3) Power-operated fork lift trucks which handle small objects or unstable loads shall be equipped with a vertical load back rest or rack which shall have height, width and strength sufficient to prevent the load, or part of it, from falling toward the mast when the mast is in a position of maximum backward tilt.

(4) The forks on power-operated fork lift trucks shall be secured to the carriage so that unintentional lifting of the toe shall not occur on such application where this lifting may create a hazard. The factor of safety of forks shall be at least 3 to 1, based on the elastic limit of the material.

(5) Fork extensions or other attachments shall be suitably secured to prevent unintentional lifting or displacement on primary forks.

(6) All exposed wheels shall be provided with guards to prevent the wheels from throwing particles at the operator.

(7) Unless the steering mechanism is of a type that prevents road reactions from causing the steering handwheel to spin, the steering knob, if used, shall be of a mushroom type to engage the palm of the operator's hand, or shall be arranged in some other manner to prevent injury. The knob shall be mounted within the perimeter of the wheel.

(8) All steering controls shall be confined within the clearances of the truck, or so guarded that movement of the controls shall not result in injury to the operator when passing obstructions, stanchions, etc.

§ 35.70-10 Permissible areas of use—TB/ALL.

(a) When the area on deck or in the hold in which power-operated industrial trucks are to be used has no bulk cargo vapors when tested but is an area in which such vapors could accumulate, these trucks may be used subject to the following conditions:

(1) Trucks used shall be suitable for type of cargo to be handled in accordance with § 35.70-15.

(2) Trucks used shall be suitable for areas in which vapors could accumulate in accordance with Table 35.70-10(a).

TABLE 35.70-10(a)

Type of truck	Grade of bulk cargo/vapors in vessel				
E					E
EE		B	C	D	E
EX	A	B	C	D	E
LP		B	C	D	E
LPS		B	C	D	E
G					E
GS		B	C	D	E
D					E
DS		B	C	D	E
Compressed air	A	B	C	D	E

(b) When a vessel is gas free, any approved truck can be used in any space except for restrictions as to types of cargo handled as specified in § 35.70-15.

§ 35.70–15 Types of cargo permitted to be handled by trucks—TB/ALL.

(a) Power-operated industrial trucks used for handling of packaged petroleum products shall be in accordance with Table 35.70–15(a).

TABLE 35.70–15(a)

Type of truck	Grade of packaged petroleum product				
E				D	E
EE		B	C	D	E
EX	A	B	C	D	E
LP				D	E
LPS		B	C	D	E
G				D	E
GS		B	C	D	E
D				D	E
DS		B	C	D	E
Compressed air	A	B	C	D	E

(b) Where dry cargo other than packaged petroleum products is to be handled by power-operated industrial trucks on board a tank vessel, types of trucks used shall be in accordance with § 97.70–10 of Subchapter I (Rules and Regulations for Cargo and Miscellaneous Vessels) of this chapter, except that all trucks shall be approved.

(c) The use of power-operated industrial trucks may be further restricted due to bulk cargo and/or vapors as set forth in Table 35.70–10(a).

§ 35.70–20 Special operating conditions—TB/ALL.

(a) Permission shall be obtained from the senior deck officer on board before placing power-operated industrial trucks in operation on a tank vessel.

(b) The senior deck officer shall ascertain by portable carbon monoxide and explosive vapor meters, if necessary, that no hazardous gas concentrations exist before granting permission to operate power trucks.

(c) When power-operated industrial trucks are in use on board vessels subject to the regulations in this subchapter, they shall be in a safe operating condition.

(d) Spaces exposed to carbon monoxide or other hazardous vapors from exhausts of power-operated industrial trucks shall have adequate ventilation. The senior deck officer shall see that tests of the carbon monoxide content of the atmosphere are made as frequently as conditions require to insure that dangerous concentrations do not develop. Such tests shall be made in the area in which persons are working, by persons acquainted with the test equipment and procedure. The carbon monoxide concentration in the holds and intermediate decks where persons are working shall be maintained at not more than 50 parts per million (0.005%) as a time-weighted average, and persons shall be removed from the area if the concentration exceeds 75 parts per million (0.0075%). When necessary, portable blowers of adequate size and location shall be utilized.

(e) The parts and/or equipment of any power-operated industrial truck requiring replacement shall be replaced only by parts and/or equipment equivalent in safety when installed with those used in the original design.

(f) Any truck that emits sparks or flames from the exhaust system shall immediately be removed from service, and not again returned to service until the cause for the emission of such sparks or flames has been eliminated.

(g) When the temperature of any part of the truck is found to be in excess of a safe operating temperature, the truck shall be removed from service until such overheating has been corrected.

(h) Operation of trucks shall be halted immediately and the engines or motors secured, whenever an emergency condition arises aboard the vessel.

(i) Operation of trucks shall be halted immediately and the engines or motors secured in the event of breakage or leakage of containers used for the carriage of flammable liquids, flammable solids or oxidizing materials.

(j) The rated capacity of a truck shall at all times be posted on the truck in a conspicuous place and such capacity shall not be exceeded.

(k) At least one approved 2-pound dry chemical hand portable fire extinguisher, or its approved equivalent, shall be affixed to the truck in a readily accessible position or kept in close proximity available for immediate use.

(l) Vessel's fire-fighting equipment, both fixed (where installed) and portable, in vicinity of space being worked shall be kept ready for immediate use.

[CGFR 65–50, 30 F.R. 16704, Dec. 30, 1965, as amended by CGFR 69–70, 34 F.R. 17482, Oct. 29, 1969]

§ 35.70–25 Refueling—TB/ALL.

(a) *When permitted.* Power-operated industrial trucks are not permitted to be

refueled in the hold of a vessel or on the weather deck except under the following conditions:

(1) Trucks using gasoline as fuel may be refueled in the hold or on the weather deck of a vessel only when such refueling is done with an acceptable portable non-spilling fuel handling system of not over 5 gallons capacity. Transfer of gasoline to these portable non-spilling fuel handling devices is not permitted on board the vessel.

(2) Power-operated industrial trucks using liquefied petroleum gas as fuel may be refueled in the hold or on the weather deck of a vessel only when fitted with removable tanks and provided the hand-operated shutoff valve of the depleted tank is closed and the engine is run until it stalls from lack of fuel before the quick disconnect fitting is opened. In addition, the quick disconnect fitting shall be attached to the fuel tank before the hand-operated shutoff valve is reopened.

(3) Power-operated industrial trucks using diesel oil as fuel may be refueled on the weather deck or in the hold of a vessel by means of portable containers of not over 5-gallon capacity. These trucks may also be refueled on the weather deck of a vessel or portable containers refilled from a larger container provided a suitable pump is used for the transfer operation and a drip pan of adequate size is supplied.

(b) *General requirements.* The following conditions must be met when refueling power-operated industrial trucks in the hold of a vessel or on the weather deck under the circumstances listed in paragraph (a) of this section:

(1) Refueling shall be under the direct supervision of an experienced and responsible person specifically designated for such job by the person in charge of the loading or unloading of the vessel.

(2) No refueling shall be undertaken with less than 2 persons specifically assigned and present for the complete operation, at least one of whom shall be experienced in using the portable fire extinguishers required in the fueling area.

(3) At least one approved 4-pound dry chemical hand portable fire extinguisher, or its approved equivalent shall be provided at the scene of the fueling area. This is in addition to the portable extinguisher affixed to the truck in accordance with § 35.70–20(k).

(4) The location for refueling trucks shall be designated by the master or senior deck officer on board the vessel. "No Smoking" signs shall be posted in the area. and smoking shall be prohibited.

(5) The location designated for refueling shall be adequately ventilated so as to insure against accumulation of a hazardous concentration of vapors. The ventilation requirements of § 35.70–20 (d) when trucks are operating shall also apply when trucks are being refueled.

(6) Truck engines of all trucks in the same hold shall be stopped before any truck in that hold is refueled and before any fuel handling devices or unmounted liquefied petroleum gas cylinders are placed in the hold.

(7) All fuel handling devices and un mounted liquefied petroleum gas containers shall be removed from the hold before any truck engine is started and the trucks again placed in operation.

§ 35.70–30 Charging or replacing batteries—TB/ALL.

(a) Battery charging or battery replacement on electric powered trucks shall not be accomplished on board the vessel in locations where vapors from Grades "A," "B," "C," or "D" cargo could accumulate.

(b) Locations on board vessel for battery charging or replacement shall be designated by the master of the vessel.

(c) Battery charging on board vessel shall be accomplished in accordance with the following provisions:

(1) The batteries shall be housed in a suitable, ventilated, portable metal container with a suitable outlet at the top for connection of a portable air hose, or shall be placed directly beneath a suitable metal hood with a suitable outlet at the top for connection of a portable air hose. The air hose shall be permanently connected to an exhaust duct leading to the open deck and terminate in a gooseneck or other suitable weather head. If natural ventilation is not practicable or adequate, mechanical means of exhaust shall be employed in conjunction with the duct. The air outlet on the battery container shall be equipped with an interlock switch so arranged that the charging of the battery cannot take place unless the air hose is properly connected to the box.

(2) If mechanical ventilation is used, an additional interlock shall be provided

between the fan and the charging circuit so that the fan must be in operation in order to complete the charging circuit for operation. It is preferable that this interlock switch be of a centrifugal type driven by the fan shaft.

(3) The charging facilities may be part of the truck equipment or may be separate from the truck and located inside or outside the cargo hold. The supply or charging circuit (whichever method is used) shall be connected to the truck by a portable plug connection of the break-away type. This portable plug shall be so engaged with the truck battery charging outlet that any movement of the truck away from the charging station will break the connection between the plug and receptacle without exposing any live parts to contact with a conducting surface or object, and without the plug falling to the deck where it may become subject to injury.

(d) Suitable materials handling equipment shall be employed and adequate precautions taken to avoid damaging or short circuiting batteries and to avoid spillage of electrolyte.

(e) All unmounted batteries shall be removed from the hold where trucks will be operated before such operation commences.

§ 35.70-35 Stowage of trucks aboard a vessel—TB/ALL.

(a) Power-operated industrial trucks may be stowed in any location aboard a vessel provided the following conditions are met:

(1) Gasoline powered trucks shall have all the fuel expended from the system.

(2) Liquefied petroleum gas powered trucks shall have the fuel tanks removed and all the fuel expended from the system.

(b) Power-operated industrial trucks not meeting the conditions set forth in paragraph (a) of this section shall be stowed on the open deck except for intervals such as lunch hours, between work shifts, interdock and intraport movements. If stowed in a fixed metal enclosure located on or above the weather deck, such enclosure shall have access from the weather deck only and shall have adequate ventilation, so arranged as to remove vapors from both the upper and lower portions of the space.

PART 36—ELEVATED TEMPERATURE CARGOES

Subpart 36.01—General

Sec.

36.01-1 Scope of regulations—TB/ALL.
36.01-5 Certificate of inspection—TB/ALL.

Subpart 36.05—Cargo Tanks

36.05-1 Installation of cargo tanks—TB/ALL.
36.05-10 Protection of personnel—TB/ALL.

Subpart 36.10—Piping, Valves, Fittings, and Accessory Equipment

36.10-1 Cargo pump relief valves—TB/ALL.

Subpart 36.20—Vents and Ventilation

36.20-1 Flame screens—TB/ALL.
36.20-5 Ventilation of pumproom—TB/ALL.

Subpart 36.30—Periodic Inspections

36.30-1 Lagged tanks—TB/ALL.

AUTHORITY: The provisions of this Part 36 issued under R.S. 4405, as amended, 4417a, as amended, 4462, as amended, sec. 6(b)(1), 80 Stat. 938; 46 U.S.C. 375, 391a, 416, 49 U.S.C. 1655(b); 49 CFR 1.46(b) (35 F.R. 4959). Interpret or apply R.S. 4488, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 481, 50 U.S.C. 198; E.O. 11239, July 31, 1965, 30 F.R. 9671, 3 CFR, 1965 Supp. Additional authority is cited in parentheses following the sections affected.

SOURCE: The provisions of this Part 36 contained in CGFR 65-50, 30 F.R. 16716, Dec. 30, 1965, unless otherwise noted.

Subpart 36.01—General

§ 36.01-1 Scope of regulations—TB/ALL.

(a) The regulations in this part contain requirements for the transportation in bulk of materials considered to be Grade E liquids when shipped in molten form at elevated temperatures.

(b) The materials covered by this part shall meet the applicable regulations of this subchapter, except that materials having a flash point of 300° F. or above, shall be exempt from the requirements prescribed in the following sections of this subchapter:

(1) Inspection prior to making repairs—§ 35.01-1(b).

(2) Watchman for a tank vessel—§ 35.05-15.

(3) Warning sign at gangway—§ 35.30-1(b).

(4) Cargo tank hatches, ullage holes and Butterworth plates—§ 35.30-10.

(5) Men on duty—§ 35.35-1.

(6) Inspection prior to transfer of cargo—§ 35.35-20.
(7) Approval to start transfer of cargo—§ 35.35-25.
(8) "Declaration of inspection" for tank ships—§ 35.35-30.
(9) Transportation of other cargo or stores on tank barges—§ 35.35-60.

(c) The regulations governing the transportation in the solid state of materials referred to in § 36.01-1(a) are contained in Part 146 of Subchapter N (Dangerous Cargoes) of this chapter.

§ 36.01-5 Certificate of inspection—TB/ALL.

(a) The certificate of inspection shall be endorsed for the carriage of elevated temperature cargoes as follows: "Inspected and approved for the carriage of Grade E combustible liquids when transported in molten form at elevated temperatures."

(R.S. 4421, as amended; 46 U.S.C. 399)

Subpart 36.05—Cargo Tanks

§ 36.05-1 Installation of cargo tanks—TB/ALL.

(a) All cargo tanks carrying liquids at elevated temperatures for the purpose of maintaining the material in the molten form shall be installed with the access openings located above the weather deck.

§ 36.05-10 Protection of personnel—TB/ALL.

(a) Decks, bulkheads, or other structures shall be insulated with an approved incombustible material, or other suitable means of protection shall be employed where practicable and necessary for the protection of personnel.

Subpart 36.10—Piping, Valves, Fittings, and Accessory Equipment

§ 36.10-1 Cargo pump relief valves—TB/ALL.

(a) Cargo pump relief valves and pressure gages may be omitted, however, a suitable device shall be fitted to stop the pumping before the designed pressure of the piping is exceeded.

Subpart 36.20—Vents and Ventilation

§ 36.20-1 Flame screens—TB/ALL.

(a) Flame screens may be omitted in the vent lines on cargo tanks.

§ 36.20-5 Ventilation of pumproom—TB/ALL.

(a) Where personnel are required to enter pumprooms located below the weather deck under normal circumstances of handling cargo, such pumprooms shall be equipped with power ventilation.

Subpart 36.30—Periodic Inspections

§ 36.30-1 Lagged tanks—TB/ALL.

(a) Lagged tanks shall have part of the lagging removed on the lower portion of the cargo tanks as directed by the marine inspector, at least once every eight years for external examination.

PART 37—SPECIAL CONSTRUCTION, ARRANGEMENT, AND OTHER PROVISIONS FOR NUCLEAR VESSELS

Subpart 37.01—Application

Sec.
37.01-1 General—TB/ALL.

Subpart 37.05—Design and Construction

37.05-1 Special requirements—TB/ALL.
37.05-5 Subdivision and stability—TB/ALL.
37.05-10 Location of nuclear system components—TB/ALL.

Subpart 37.10—Inspection and Certification

37.10-1 Annual inspection and certification required—TB/ALL.
37.10-5 Additional requirements—TB/ALL.
37.10-15 International Convention certification—T/ALL.

Subpart 37.15—Other Special Provisions

37.15-1 Radiation—TB/ALL.
37.15-3 Means for preventing uncontrolled release of radiation—TB/ALL.
37.15-5 Atomic Energy Commission safety requirements—TB/ALL.
37.15-10 Safety assessment—TB/ALL.

Subpart 37.20—Operations

37.20-1 Operating Manual—TB/ALL.
37.20-5 Special operating procedures—TB/ALL.

AUTHORITY: The provisions of this Part 37 issued under R.S. 4405, as amended, 4417a as amended, 4462, as amended, sec. 2, 23 Stat. 118, as amended, secs. 2, 633, 63 Stat. 496 545 sec. 6(b)(1), 80 Stat. 938; 46 U.S.C. 375, 391a, 416, 2, 14 U.S.C. 2, 633, 49 U.S.C. 1655 (b); 49 CFR 1.46(b) (35 F.R. 4959). R.S. 4417, as amended, 4418, as amended, 4433, as amended, 4453, as amended, 4472, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544 1545, as amended, sec. 3, 68 Stat.

675; 46 U.S.C. 391, 392, 411, 435, 170, 363, 367, 50 U.S.C. 198; E.O. 11239, July 31, 1965, 30 F.R. 9671, 3 CFR, 1965 Supp.

SOURCE: The provisions of this Part 37 contained in CGFR 68-82, 33 F.R. 18805, Dec. 18, 1968, unless otherwise noted.

Subpart 37.01—Application

§ 37.01-1 General—TB/ALL.

(a) The provisions of this part shall apply to all installations, systems, and components thereof, utilizing nuclear energy for propulsion or for any other purpose. They shall include vessels handling substantial quantities of radioactive materials other than cargo.

Subpart 37.05—Design and Construction

§ 37.05-1 Special requirements—TB/ALL.

(a) The features described in this section shall be provided in nuclear vessels regardless of length or gross tonnage.

(b) A temporary and final source of emergency power, as required for oceangoing passenger vessels over 1,600 gross tons, shall be provided to insure an uninterrupted power supply to nuclear instrumentation, control, and safety systems. For applicable requirements see § 112.05-5(a) of Subchapter J (Electrical Engineering) of this chapter.

(c) Bilge system arrangements, as required for self-propelled oceangoing passenger vessels over 300 feet, shall be provided. For applicable requirements see §§ 56.50-50 and 56.50-55 of Subchapter F (Marine Engineering) of this chapter.

(d) The boundary bulkheads and decks separating the reactor compartment, other compartments containing vital primary system equipment, nuclear chemistry laboratories, and reactor control spaces from accommodations, galley, main pantries, and machinery spaces requiring fixed type extinguishing systems shall be of A-60 construction. For definition of Class A-60 construction, see Subpart 72.05 of Subchapter H (Passenger Vessels) of this chapter.

§ 37.05-5 Subdivision and stability—TB/ALL.

(a) Watertight subdivision and damage stability requirements shall satisfy not less than a two-compartment standard. Whenever practicable they should be at least equivalent to that required for a conventionally powered oceangoing passenger vessel of similar size, capacity, and tonnage.

(b) A full double bottom shall be provided, regardless of the actual length of the vessel, as required by Subpart 73.25 of Subchapter H (Passenger Vessels) of this chapter for vessels over 249 feet in length.

(c) In assessing stability, direct calculations shall be utilized which take into account the form and proportions of the hull. The details of such calculations shall be in accordance with the provisions of Parts 73 and 74 of Subchapter H (Passenger Vessels) of this chapter except that subdivision and damage stability calculations will be based on the most severe permeability assumptions applicable to each compartment, having regard for its actual use.

§ 37.05-10 Location of nuclear system components—TB/ALL.

(a) The location of the nuclear system components in the vessel and the manner in which they are supported shall be approved by the Commandant. In determining the location and the necessary structural support and protection required, the effects of grounding, collision or other mishap resulting in holing of the vessel shall be considered.

(b) Reactor installations, including all potentially vulnerable primary system components, shall be placed as far inboard from the shell as practicable. Generally, the installation shall be situated inboard of a vertical surface perpendicular to the waterplane. The vertical surface shall be located at a minimum distance (measured at right angles to the centerline at the deepest loadline) inboard of the shell equal to one-fifth of the extreme breadth of the vessel. If the installation extends outboard of this vertical surface, special consideration shall be given to collision protection.

(c) Reactor installations shall be located a reasonable height above the ship's bottom, but in no case shall this height be less than the required double bottom height. Waste storage tanks and engineered safeguard systems may be permitted in the double bottom space if specifically approved by the Commandant. Consideration shall be given to

collision-analysis statistics with regard to the longitudinal (fore and aft) location of the reactor installation.

Subpart 37.10—Inspection and Certification

§ 37.10–1 Annual inspection and certification required—TB/ALL.

(a) Every nuclear vessel subject to the regulations in this subchapter shall be inspected by the U.S. Coast Guard at least annually to ascertain that the hull, nuclear systems, machinery, equipment, appliances, etc., of the vessel comply with the applicable regulations in this chapter.

(b) Every nuclear vessel found to be in compliance with applicable requirements in this subchapter will be issued a certificate of inspection in accordance with Part 31 of this subchapter.

§ 37.10–5 Additional requirements—TB/ALL.

(a) In addition to the requirements for inspection, test, overhaul and repair specified in this subchapter, nuclear vessels may be subject to such additional requirements as may be prescribed by the Commandant for inspection, test, overhaul, and repair. For applicable requirements see Subpart 61.25 of Subchapter F (Marine Engineering) of this chapter.

(b) A prerequisite for annual recertification of the vessel will be a valid Atomic Energy Commission's facility operating license, or if nonlicensed a certificate from the Atomic Energy Commission stating that the nuclear installation complies with the requirements of the Commission.

§ 37.10–15 International Convention certification—T/ALL.

(a) For applicable requirements governing Safety of Life at Sea Convention certificates see §§ 31.40–1, 31.40–20, and 31.40–40(e) of this subchapter.

Subpart 37.15—Other Special Provisions

§ 37.15–1 Radiation—TB/ALL.

(a) The vessel shall be so designed, constructed and operated that no unreasonable hazard of radiation at sea or in port for crew, food, water supply, passengers, public, or waterways exists.

(b) The Atomic Energy Commission's Standards for Protection Against Radiation, set forth in 10 CFR Part 20, will be the radiation protection standards followed by the U.S. Coast Guard, except as otherwise provided for by law.

§ 37.15–3 Means for preventing uncontrolled release of radiation—TB/ALL.

(a) The vessel's nuclear systems, including all components thereof, shall be provided with means for preventing the uncontrolled release of hazardous amounts of radioactive material to normally accessible spaces on the ship or to the ship's environment in the event of accident or malfunction of any such system.

§ 37.15–5 Atomic Energy Commission safety requirements—TB/ALL.

(a) Before a Coast Guard certificate of inspection for a nuclear vessel will be issued, it must be shown that the nuclear system meets the safety requirements of the Atomic Energy Commission. After facility licensing, possession of a valid AEC license will attest to this fact. Prior to this license, a letter from the Commission to the Coast Guard with assurance that the system does meet the safety requirements of the Atomic Energy Commission is required.

§ 37.15–10 Safety assessment—TB/ALL.

(a) A safety assessment shall be prepared to permit evaluation of the nuclear power plant and safety of the ship, and to ensure that there are no unreasonable radiation or other hazards, at sea or in port, to the crew, passengers or public, or to the waterways or food or water resources.

(b) The safety assessment shall be submitted to the Commandant for approval and shall always be kept up-to-date.

(c) The safety assessment will be used as a basis for establishing orderly negotiations between the United States and governments of countries which a nuclear vessel intends to visit to permit entry of nuclear ships into ports of different countries.

Subpart 37.20—Operations

§ 37.20–1 Operating manual—TB/ALL.

(a) A fully detailed Operating Manual shall be prepared for the information and guidance of the operating personnel in their duties on all matters relating to the operation of the nuclear powerplant and having an important bearing on safety.

(b) The Operating Manual shall be submitted to the Commandant for approval and shall always be kept up-to-date.

(c) A copy of the Operating Manual shall be kept on board the vessel at all times.

§ 37.20-5 Special operating procedures—TB/ALL.

(a) In addition to the requirements specified in this chapter, all nuclear vessels may be subject to additional requirements governing fueling, startup, and operation.

PART 38—LIQUEFIED FLAMMABLE GASES

Subpart 38.01—General

Sec.

38.01-1 Scope of regulations—TB/ALL.
38.01-2 Transportation of portable cylinders or portable tanks containing or having previously contained liquefied flammable gases in dry cargo spaces—TB/ALL.
38.01-5 Certificate of inspection—TB/ALL.

Subpart 38.05—Design and Installation

38.05-1 Design and construction of vessels—general—TB/ALL.
38.05-2 Design and construction of cargo tanks—general—TB/ALL.
38.05-3 Design and construction of pressure vessel type cargo tanks—TB/ALL.
38.05-4 Design and construction of non-pressure vessel type cargo tanks—TB/ALL.
38.05-5 Markings—TB/ALL.
38.05-10 Installation of cargo tanks—general—TB/ALL.
38.05-20 Insulation—TB/ALL.
38.05-25 Refrigerated systems—TB/ALL.

Subpart 38.10—Piping, Valves, Fittings, and Accessory Equipment

38.10-1 Valves, fittings, and accessories—TB/ALL.
38.10-5 Filling and discharge pipes—TB/ALL.
38.10-10 Cargo piping—TB/ALL.
38.10-15 Safety relief valves—TB/ALL.
38.10-20 Liquid level gaging devices—TB/ALL.

Subpart 38.15—Special Requirements

38.15-1 Filling of tanks—TB/ALL.
38.15-5 Cargo hose—TB/ALL.
38.15-10 Leak detection systems—T/ALL.
38.15-15 Electrical installations—TB/ALL.
38.15-20 Remote shutdowns—TB/ALL.

Subpart 38.20—Venting and Ventilation

38.20-1 Venting—T/ALL.

Sec.

38.20-5 Venting—B/ALL.
38.20-10 Ventilation—T/ALL.

Subpart 38.25—Periodic Tests and Inspections

38.25-1 Tests and inspections—TB/ALL.
38.25-5 Removal of defective tanks—TB/ALL.
38.25-10 Safety relief valves—TB/ALL.

AUTHORITY: The provisions of this Part 38 issued under R.S. 4405, as amended, 4417a, as amended, 4462, as amended, sec. 6(b)(1), 80 Stat. 938; 46 U.S.C. 375, 391a, 416, 49 U.S.C. 1655 (b); 49 CFR 1.46(b) (35 F.R. 4959). Sec. 3, 68 Stat. 675; 50 U.S.C. 198, E.O. 11239, July 31, 1965, 30 F.R. 9671, 3 CFR, 1965 Supp., unless otherwise noted.

SOURCE: The provisions of this Part 38 contained in CGFR 66-33, 31 F.R. 15269, Dec. 6, 1966, unless otherwise noted.

Subpart 38.01—General

§ 38.01-1 Scope of regulations—TB/ALL.

(a) The regulations in this part contain requirements for the transportation of liquefied or compressed gases, whose primary hazard is one of flammability.

(b) The transportation "on deck" of liquefied flammable gases in portable cylinders and tanks and the transportation of empty cylinders and portable tanks previously used shall be in accordance with the requirements of Part 146 of Subchapter N (Dangerous Cargoes) of this chapter. The transportation of such containers "under deck" shall be in accordance with the requirements of § 38.01-2.

§ 38.01-2 Transportation of portable cylinders or portable tanks containing or having previously contained liquified flammable gases in dry cargo spaces—TB/ALL.

(a) DOT cylinders, DOT Specification portable tanks, or other approved portable tanks containing liquefied flammable gases may be transported under deck, provided the following requirements are met:

(1) The cargo space shall be provided with efficient means of ventilation, be protected from artificial heat, and be readily accessible from hatches.

(2) Containers shall be stored in such a position that the safety relief device is in communication with the vapor space of the container. They shall be properly stowed, dunnaged, and secured to prevent movement in any direction.

(3) Unless a method acceptable to the Commandant is used, the containers

shall not be overstowed in the same dry cargo space with other liquefied flammable gas containers, nor with other cargo.

(4) The containers shall be suitably protected against physical damage from other cargo, ship's stores, or equipment in such spaces.

(5) Cylinders shall have their valves protected at all times by one of the following methods:

(i) By metal caps securely attached to the cylinders and of sufficient strength to protect the valves from injury.

(ii) By having the valves recessed into the cylinders or otherwise protected so that they will not be subject to a blow if the cylinder is dropped on a flat surface.

(6) Portable tanks shall have their valves protected at all times by a housing in accordance with the requirements under which they were manufactured.

(7) Electrical circuits in such cargo spaces shall meet the requirements of § 111.60–40 in Subchapter J (Electrical Engineering) of this chapter. If the electrical circuit does not meet such requirements, it must be deenergized by a positive means and not reenergized until the cargo has been removed and the space has been tested and found free of flammable vapor.

(8) During the stowage of portable cylinders or portable tanks in a hold or compartment, that is not fitted with electrical fixtures meeting the requirements of § 111.60–40, no means of artificial lighting shall be used within the space unless such equipment is of the explosion-proof type. Electrical connections for portable lights shall be made from outlets on the weather deck. Hand flashlights used in the stowage area shall be of an approved type.

(9) The following dangerous cargoes shall not be stowed in the same hold or compartment with liquefied flammable gas containers:

(i) Class A, B, or C explosives.

(ii) Flammable solids.

(iii) Oxidizing materials.

(iv) Corrosive liquids.

(v) Poisonous articles.

(vi) Cotton and similar fibrous materials.

(R.S. 4472, as amended, 4488, as amended, 46 U.S.C. 170, 481) [CGFR 66–33, 31 F.R. 15269, Dec. 6, 1966, as amended by CGFR 68–32, 33 F.R. 5714, Apr. 12, 1968]

§ 38.01–5 Certificate of inspection—TB/ALL.

(a) The certificate of inspection shall be endorsed for the carriage of liquefied flammable gases as follows:

Inspected and approved for the carriage of liquefied flammable gases (1) at a pressure not to exceed ------ p.s.i., and (2) at temperatures not less than ------° F.

(b) Tanks approved to carry cargoes at below ambient temperatures shall have the applicable limiting temperatures indicated on the certificate. Tanks designed to carry cargoes only at ambient temperatures should have the word "ambient" entered in these spaces.

(R.S. 4421, as amended; 46 U.S.C. 399)

Subpart 38.05—Design and Installation

§ 38.05–1 Design and construction of vessels—general—TB/ALL.

(a) Vessels designed for the carriage of liquefied gases shall comply with the applicable requirements of this subchapter.

(b) Access and ventilation intakes to the machinery, accommodation and working spaces should be so arranged as to prevent the flow of cargo vapor from the weather deck into such spaces. In this respect openings in the forward or after ends of poops, forecastles, and deckhouses adjacent the cargo area shall be at least 24 inches above the cargo handling deck.

(c) Materials used in the fabrication of cargo tanks and piping shall have adequate notch toughness at the service temperature. Where a secondary barrier is required, the material of that barrier and of contiguous hull structure shall have sufficient notch toughness at the lowest temperature which may result during the containment of leakage cargo within the secondary barrier. Materials used in the fabrication of the cargo containment and handling system shall satisfy the requirements for toughness specified in Subchapter F (Marine Engineering) of this chapter.

(d) Cargo tank spaces are to be isolated from the remainder of the vessel by cofferdams in accordance with § 32.60–10 of this subchapter. In a nonpressure vessel configuration, the void between the primary and secondary barriers shall not be acceptable as the required cofferdam

etween the tank spaces and the main achinery spaces.

(e) Compartments containing cargo nks or pipes shall be accessible from ie weather deck only. No openings from iese compartments to other parts of the essel are permitted.

(f) Barges utilized for the carriage of quefied gases shall be of Type II barge ull as defined in § 32.63–5(b)(2) of this ibchapter. The Commandant may, ased on the properties of the liquefied as to be carried, require a Type I barge ull, as defined in § 32.63–5(b)(1) of this ibchapter, to ensure the hull is consistnt with the degree and nature of the azard of the liquefied gas to be carried. R.S. 4472, as amended, 4488, as amended, U.S.C. 170, 481) [CGFR 66–33, 31 F.R. 269, Dec. 6, 1966, as amended by CGFR 68–, 33 F.R. 18806, Dec. 18, 1968; CGFR 68–65, F.R. 19985, Dec. 28, 1968; CGFR 70–10, 35 R. 3709, Feb. 25, 1970]

38.05–2 Design and construction of cargo tanks—general—TB/ALL.

(a) The maximum allowable tempera-ire of the cargo is defined as the boil-ig temperature of the liquid at a pres-ire equal to the setting of the relief alve.

(b) The service temperature is the inimum temperature at which cargo is oaded and/or transported in the cargo ank. However, the service temperature nall in no case be taken higher than iven by the following formula:

$$t_s = t_w - 0.25(t_w - t_b) \quad (1)$$

here:

t_s=Service temperature.

t_w=Boiling temperature of gas at normal working pressure of tank but not higher than +32° F.

t_b=Boiling temperature of gas at atmospheric pressure.

(c) Heat transmission studies, where equired, shall assume the minimum am-ient temperatures of 0° F. still air and 2° F. still water, and maximum ambient emperatures of 115° F. still air and 90° '. still water.

(d) Cargo tanks in vessels in ocean; Great Lakes; lakes, bays, and sounds; or oastwise service shall be designed to ithstand, simultaneously, the following ynamic loadings:

(1) Rolling 30° each side (120°) in 10 econds.

(2) Pitching 6° half amplitude (24°) n 7 seconds.

(3) Heaving $L/80'$ half amplitude ($L/20'$) in 8 seconds.

(e) Cargo tanks on barges shall be designed in accordance with § 32.63–25 of this subchapter.

(f) Each liquefied flammable gas tank shall be provided with not less than a 15-inch by 23-inch or an 18-inch nominal diameter manhole fitted with a cover located above the maximum liquid level and as close to the top of the tank as possible. Where access trunks are fitted to the tanks, the nominal diameter of the trunks shall be not less than 30 inches.

(g) Cargo tanks vented above 10 pounds per square inch gage shall be of the pressure vessel type.

(R.S. 4433, as amended; 46 U.S.C. 411)

§ 38.05–3 Design and construction of pressure vessel type cargo tanks—TB/ALL.

(a) Cargo tanks of pressure vessel configuration (e.g. cylindrical, spherical, etc.) shall be designed, fabricated, inspected, and tested in accordance with the applicable requirements of Part 54 of Subchapter F (Marine Engineering) of this chapter, except as otherwise provided for in this part.

(b) The requirements of this section anticipate that cargo tanks constructed as pressure vessels will, by themselves, constitute the cargo containment system and usually will not require a secondary barrier.

(c) In the design of the tank, consideration shall be given to the possibility of the tank being subjected to external loads. Consideration shall also be given to excessive loads that can be imposed on the tanks by their support due to static and dynamic forces under operating conditions or during testing. The design shall show the manner in which the tanks are to be installed, supported, and secured, and shall be approved prior to tank installation.

(d) Tanks with a service temperature of minus 20° F. or lower and fabricated of ferritic materials shall be stress relieved.

(e) Unlagged cargo tanks, where the cargo is transported, at or near ambient temperatures, shall be designed for the vapor pressure of the gas at 115° F. The design shall also be based on the minimum internal pressure (maximum vacu-

um), plus the maximum external static head to which the tank may be subjected. Whenever surrounding cargo is at a greater temperature than the maximum allowable temperature of the liquefied flammable gas tanks, the liquefied flammable gas cargo is to be such that the design pressure of the liquefied flammable gas tank is not exceeded.

(f) Where cargo tanks, in which the cargo is transported at or near ambient temperature, are lagged with an insulation material of a thickness to provide a thermal conductance of not more than 0.075 B.t.u. per square foot per degree Fahrenheit differential in temperature per hour, the tanks shall be designed for a pressure of not less than the vapor pressure of the gas at 105° F. The insulation material shall conform to the requirements of § 38.05-20. The design shall also be based on the minimum internal pressure (maximum vacuum) plus the maximum external static head to which the tank may be subjected.

(g) Cargo tanks in which the temperature is maintained below the normal atmospheric temperature by refrigeration or other acceptable means shall be designed for a pressure of not less than 110 percent of the vapor pressure corresponding to the temperature of the liquid at which the system is maintained, or the pressure corresponding to the greatest dynamic and static loads expected to be encountered either in service or during testing. For mechanically stress relieved cargo tanks, additional factors relating design pressure and maximum allowable pressure shall be as specified by the Commandant. The material of the tank shall satisfy the requirements of Subchapter F (Marine Engineering) of this chapter for the service temperature, and this temperature shall be permanently marked on the tank as prescribed in § 38.05-5.

(h) Where applicable, the design shall investigate the thermal stresses induced in the cargo tank at the service temperature.

(i) The shell and head thickness of liquefied gas cargo tanks shall not be less than five-sixteenths inch.

(R.S. 4433, as amended; 46 U.S.C. 411) [CGFR 66-33, 31 F.R. 15269, Dec. 6, 1966, as amended by CGFR 68-82, 33 F.R. 18806, Dec. 18, 1968]

§ 38.05-4 Design and construction of nonpressure vessel type cargo tanks—TB/ALL.

(a) The requirements in this section anticipate a cargo containment system consisting of a primary tank which is structurally self-supporting and, where required, a secondary barrier. Other vessel or cargo tank configurations, such as membrane type liners externally supported, will be considered upon submission of substantiating data, and based upon such additional tests as the Commandant may direct.

(b) A secondary barrier is an arrangement or structure designed to contain the cargo temporarily if leakage develops in the primary container. A secondary barrier shall be provided where leakage from the primary container may cause lowering of the temperature of the ship's structure to an unsafe level. The secondary barrier shall be constructed of material suitable to contain the cargo at the service temperature.

(c) The design of the cargo containment systems shall be such that under normal service conditions, or upon failure of the primary tank, the hull structure shall not be cooled down to a temperature which is unsafe for the materials involved. Structural members not suitable for the service temperature of the cargo shall be protected by a secondary barrier consisting of suitable structural containment together with necessary associated insulation. Heat transmission studies and tests may be required to demonstrate that the arrangement is feasible and that the final material temperatures are acceptable.

(d) The design and construction of the cargo tanks shall be at least equivalent to the standards established by the American Bureau of Shipping or other recognized classification society. For special tanks, or designs not contemplated by standards of the classification society, a detailed analysis of the entire tank, or designated parts thereof, shall be made and submitted to the Commandant for approval.

(e) The cargo tank shall be designed for a head of cargo at least equal to the highest level the liquid cargo may attain plus the maximum venting pressure. In no case shall a head of cargo less than 4 feet above the cargo hatch or expansion trunk be used.

(f) The design shall investigate the hermal stresses induced in the cargo ank during loading. Where necessary, evices for spray loading or other meth-ds of precooling or cooling during load-ng shall be included in the design.

(g) All weld intersections or crossings n joints of primary tank shells shall e radiographed for a distance of 10 hicknesses from the intersection. All ther welding in the primary tank and n the secondary barrier shall be spot adiographed in accordance with the re-uirements of Part 54 of Subchapter F Marine Engineering) of this chapter.

R.S. 4433, as amended; 46 U.S.C. 411) CGFR 66-33, 31 F.R. 15269, Dec. 6, 1966, as mended by CGFR 68-82, 33 F.R. 18807, Dec. 8, 1968]

38.05-5 Markings—TB/ALL.

(a) (1) Upon satisfactory completion f tests and inspection, pressure vessel nd nonpressure vessel type cargo tanks, hall have markings as required by 54.10-20 of Subchapter F (Marine En-ineering) of this chapter except that or nonpressure vessel type tanks, the Coast Guard number and pressure vessel lass shall be omitted.

(2) Hydrostatic test for pressure ves-el type tanks shall be that specified in 38.25-1(b). In the case of nonpressure essel type tanks, the hydrostatic test ressure shall mean the pressure speci-led in § 38.25-1(d), while the maximum llowable pressure shall mean the maxi-num venting pressure as used in § 38.05-(e). Where it is not feasible to attach he nameplate to the tank, it shall be onspicuously displayed nearby.

(b) All tank inlet and outlet connec-ions, except safety relief valves, liquid evel gaging devices, and pressure gages, hall be labeled to designate whether hey terminate in the vapor or liquid pace. Labels of corrosion-resistant ma-erial may be attached to valves.

(c) All tank markings shall be perma-ıently and legibly stamped in a readily isible position, and shall not be obscured y painting. If the tanks are lagged, he markings attached to the tank proper hall be duplicated on a corrosion-resist-ınt plate secured to the outside jacket of he lagging.

CGFR 66-33, 31 FR 15269, Dec. 6, 1966, as mended by CGFR 68-82, 33 FR 18807, Dec. 8, 1968]

§ 38.05-10 Installation of cargo tanks—general—TB/ALL.

(a) (1) Cargo tanks shall be supported on foundations of steel or other suitable material and securely anchored in place to prevent the tanks from shifting when subjected to external forces. Each tank shall be so supported as to prevent the concentration of excessive loads on the supporting portions of the shell or head as prescribed under § 38.05-2(d).

(2) Cargo tanks installed in barges shall comply with the requirements of § 32.63-25 of this subchapter.

(b) Foundations, and stays where required, shall be designed for support and constraint of the weight of the full tank, and the dynamic loads imposed thereon. Thermal movement shall also be considered.

(c) Foundations and stays which may be exposed to the cargo shall be suitable for the temperatures involved and be impervious to the cargo.

(d) The design of the foundations and stays shall consider the resonance of the cargo tank, or parts thereof, and the vibratory forces found in the tank vessel. If necessary, effective damping arrangements shall be provided.

(e) Independent containment systems shall be so arranged as to provide a minimum clearance of not less than 24 inches from the vessel's side and not less than 15 inches from the vessel's bottom to provide access for inspection of the hull. Clearances for collision protection, where required by other parts of the regulations in this subchapter, may increase the clearances specified here.

(1) For pressure vessel type tanks the distance between adjacent tanks and between tanks and vessel's structure shall be adequate to permit access for inspection and maintenance of all tank surfaces and hull structure as approved by the Commandant. Alternate provisions may be made for inspection and maintenance of the vessel's structure and tanks by moving such tanks or by providing equivalent acceptable means for remote inspection.

(2) For nonpressure vessel type containment systems, access shall be arranged to permit inspection of one side each of the primary tank and secondary barrier, under normal shipyard conditions. Containment systems which, because of their peculiar design, cannot be

visually inspected to this degree, may be specially considered provided an equivalent degree of safety is attained.

(f) Cargo tanks may be installed "on deck," "under deck," or with the tanks protruding through the deck. All tanks shall be installed with the manhole openings located in the open above the weather deck. Provided an equivalent degree of safety is attained, the Commandant may approve cargo tanks installed with manhole openings located below the weather deck.

(g) For pressure vessel type cargo tanks, the following conditions apply:

(1) Liquefied flammable gas cargo tanks may be located in cargo tanks or in spaces which meet the requirements for cofferdams as defined in § 30.10–13 of this subchapter. When liquefied flammable gas cargo tanks are installed in cargo tanks, such cargo tanks may be used simultaneously or separately for the carriage of flammable or combustible liquids up to and including the grade for which the cargo tanks are otherwise certified in accordance with the requirements of this subchapter.

(2) Where the liquefied flammable gas tanks are installed in cargo tanks and a portion of the liquefied flammable gas tanks extend above the weather deck, the penetration shall be made gastight and watertight, and shall be such as to provide full compliance with the structural requirements including testing for the hull and integral tanks. In the application of the requirements for the hydrostatic test of the cargo tanks, the hydrostatic test shall in no case be less severe than the worst anticipated service condition of the cargo loading. In the design and testing of independent cargo tanks and integral cargo tanks consideration shall be given to the possibility of the independent tanks being subjected to external loads.

(3) Where the liquefied flammable gas tanks are installed in nontank hull spaces and a portion of the tank extends above the weather deck, provision shall be made to maintain the weathertightness of the deck, except that the weathertightness of the upper deck need not be maintained on:

(i) Vessels operating on restricted routes which are sufficiently protected; or,

(ii) Open nopper type barges of acceptable design.

(h) No strength welding employed in the attachment of supports, lugs, fittings, etc., shall be done on tanks that require and have been stress relieved, unless authorized by the Commandant. (R.S. 4433, as amended, 4488, as amended; 46 U.S.C. 411, 481)

§ 38.05–20 Insulation—TB/ALL.

(a) Where used, tank insulation shall satisfy the following requirements for combustibility, installation, and arrangement:

(1) Insulation in a location exposed to possible high temperature or source of ignition shall be either:

(i) Incombustible, complying with the requirements of Subpart 164.009 of Subchapter Q (Specifications) of this chapter; or,

(ii) Self-exunguishing, as determined by American Society for Testing and Materials Specification D–1692, "Flammability of Plastics, Foam and Sheeting," and covered by a suitable steel cover.

(2) Insulation in a location protected against possible ignition by enclosure in a tight steel envelope in which inert conditions are maintained need satisfy no requirement for combustibility except chemical stability.

(3) Insulation in a location protected against possible high temperature or source of ignition by continuous surrounding structural voids or ballast tanks need satisfy no requirement for combustibility except chemical stability.

(b) All insulation shall be of a vapor-proof construction, or have a vapor-proof coating of a fire-retardant material acceptable to the Commandant. Unless the vapor barrier is inherently weather resistant, tanks exposed to the weather shall be fitted with a removable sheet metal jacket of not less than 0.083-inch thick over the vapor-proof coating and flashed around all openings so as to be weathertight. Weather resistant coatings shall have sheet metal over areas subject to mechanical damage.

(c) The insulation shall be adequately protected in areas of probable mechanical damage.

(d) Insulation which forms an integral part of the secondary barrier shall meet the following additional requirements:

(1) When the secondary barrier is called upon to contain the cargo, insulating material which is contacted shall not be affected by the cargo. Samples of the insulating material shall be tested in the cargo for solubility, absorption

and shrinkage. The samples shall be checked for the above effects at intervals not exceeding 1 week, for a total test period of 6 weeks.

(2) Any adhesives, sealers, coatings, or vapor barrier compounds used in conunction with the insulating material shall be similarly tested to insure suitable cargo resistive properties.

(3) The insulation shall have sufficient mechanical strength for the proposed design. Additionally, the thermal expansion of the insulation relative to the material to which it is affixed shall be considered in the design.

(e) The insulation for the piping systems shall be at least of the "self-extinguishing" type described in paragraph (a) of this section, and comply with the requirements contained in paragraphs (b) and (c) of this section.

§ 38.05–25 Refrigerated systems—TB/ALL.

(a) When a liquefied flammable gas is carried below atmospheric temperature under the requirements of § 38.05–3(f) or § 38.05–4, maintenance of the tank pressure below the maximum allowable pressure shall be provided by one or more of the following means:

(1) A refrigeration or liquefication system which regulates the pressure in the tanks. A standby compressor or equivalent equipment, of a capacity equal to one of the working units shall be provided.

(2) A system whereby the vapors are utilized as fuel for shipboard use.

(3) A system allowing the liquefied flammable gas to warm up and increase in pressure. The insulation and tank design pressure shall be adequate to provide for a suitable margin for the operating time and temperatures involved.

(4) Other systems acceptable to the Commandant.

(b) A system whereby the vapors are vented to the atmosphere at sea only may be employed in conjunction with paragraph (a)(1) of this section. The pressure control valves shall be independent of the safety relief valves. See § 38.20–1 (j).

Subpart 38.10—Piping, Valves, Fittings, and Accessory Equipment

AUTHORITY NOTE: The provisions of this Subpart 38.10 also issued under R.S. 4433, as amended, 4488, as amended; 46 U.S.C. 411, 481.

§ 38.10–1 Valves, fittings, and accessories—TB/ALL.

(a) All valves, flanges, fittings, and accessory equipment shall be of a type suitable for use with liquefied flammable gases, and shall be made of steel or grade A malleable iron, acceptable for the service temperature and pressure according to the requirements of Part 56 of Subchapter F (Marine Engineering) of this chapter. Other materials may be specially considered and approved by the Commandant.

(b) All valves, flanges, fittings, and accessory equipment shall have a pressure rating at operating temperatures not less than the maximum allowable pressure to which they may be subjected. Piping which is not protected by a relief valve or which can be isolated from its relief valve by other valves shall be designed for the greatest of the cargo vapor pressure at 115° F., or the maximum allowable pressure of the cargo tank, or the requirements of § 38.10–10(a). Cargo liquid piping which may be subject to liquid full conditions shall be fitted with relief valves. The escape from piping systems relief valves shall be piped to a venting system or to a suitable vapor recovery system. Provision shall be made for the proper venting of all valves, fittings, etc., in which pressure buildup may occur, especially in refrigerated systems, because of an increase in product temperature.

(c) Welded connections shall be used wherever possible with the number of flanged joints kept to the minimum necessary for assembly and cleaning. Sockets in sizes 3 inches and smaller and slip-on flanges in sizes 4 inches and smaller may be used. Threaded joints may be used in sizes of 1 inch and smaller. Where threaded joints are used, they shall be visible and accessible for inspection under all service conditions, and limited to instrument and control lines properly valved from the main lines. Where threaded joints are sealed by brazing or welding, they need not be exposed.

(d) Valve seat material, packing, gaskets, etc., shall be resistant to the action of the liquefied flammable gas. All flange and manhole cover gaskets shall be compressed asbestos, spiral-wound metal asbestos, metal jacketed asbestos, solid aluminum, corrugated steel, solid steel, or iron, or other materials with equal or better resistance to fire exposure.

(e) Provisions shall be made by the use of offsets, loops, bands, expansion joints, etc., to protect the piping and tank from excessive stress due to thermal movement and/or movements of the tank and hull structure. Expansion joints shall be held to a minimum and where used shall be of the bellows type and subject to special approval by the Commandant.

(f) Low temperature piping shall be thermally isolated from the hull structure. Arrangements should provide for the protection of the hull structure from leaks in way of pumps, flanges, joints, etc.

(g) Each tank shall be provided with the necessary fill and discharge liquid and vapor shutoff valves, safety relief valve connections, refrigeration connections where necessary, liquid level gaging devices, thermometer well and pressure gage, and shall be provided with suitable access for convenient operation. Piping shall enter the cargo tanks above weather deck and as close to the top of the tank or dome as possible, except as otherwise permitted in this section. Connections to the tanks shall be protected against mechanical damage and tampering. No underdeck cargo piping shall be installed between the outboard side of the cargo containment system and the shell of the vessel, unless provision is made to maintain the minimum inspection and collision protection clearances of § 38.05–10 (e) between the piping and the shell. Other openings in the tanks, except as specifically permitted by the Commandant, are prohibited.

(h) Cargo loading and discharge piping may be connected to the tanks below the weather deck or below the liquid level subject to approval by the Commandant, provided:

(1) A remotely controlled quick-closing shutoff valve is flanged to the tank outlet connection. The control mechanism for this valve shall meet the requirements of § 38.10–5.

(2) The piping which is below the weather deck or liquid level shall be joined by welding except for a flanged connection to the quick-closing shutoff valve and a flanged connection to the cargo pump.

(3) The design and arrangement of this piping, including the flange bolting shall be such that excessive stresses will not be transmitted to the cargo tank outlet connection or the quick-closing valve, even in the event of abnormal displacement of the piping.

(4) Except for those vessels, the design of which permits the exclusion of a weathertight deck over the tanks, the space in which such piping is located shall be accessible only from the weather deck and shall be vented to a safe location above the weather deck.

(i) All connections to tanks, except safety relief valves and liquid level gaging devices, shall have manually operated shutoff valves located as close to the tank as possible. In addition, all liquid and vapor connections on pressure vessel type tanks except safety relief valves, liquid level gaging devices, and filling and discharge lines, shall be equipped with either an automatic excess flow valve or a remotely controlled quick-closing shutoff valve of the fail closed type. These valves, except when necessary for the operation of the system, shall remain closed. For pressure vessel type tanks operating at low pressure and with service temperature near the cargo atmospheric boiling point, the Commandant may approve individual installations where the liquid and vapor connections normally requiring automatic excess flow valves or remotely controlled quick-closing shutoff valves are fitted with manually operated shutoff valves only.

(j) The control system for quick-closing shutoff valves shall be provided with a remote control in at least two locations and be of a type acceptable to the Commandant. The control system shall also be provided with a fusible element designed to melt between 208° F. and 220° F., which will cause the quick-closing shutoff valves to close in case of fire. The quick-closing shutoff valves shall be capable of local manual operation.

(k) Excess flow valves, where required by this subchapter shall close automatically at the rated flow of vapor or liquid as specified by the manufacturer. The piping, including valves, fitting, and appurtenances protected by an excess flow valve, shall have a greater capacity than the rated flow of the excess flow valve.

(l) Liquid level gaging devices which are so constructed that outward flow of tank contents shall not exceed that passed by a No. 54 drill size (0.055-inch diameter) opening, need not be equipped with excess flow valves.

(m) Pressure gage connections need not be equipped with excess flow valves if the openings are not larger than No. 54 drill size (0.055-inch diameter).

(n) Excess flow valves may be designed with a bypass not to exceed a No. 60 drill size (0.040-inch diameter) opening to allow equalization of pressure.

(o) Suitable valves shall be installed on the cargo headers to relieve the pressure in the liquid and vapor lines to a safe location prior to disconnecting shore lines.

(p) A pressure gage shall be located at the highest practicable point. A thermometer well where installed on the tank proper shall be attached to the tank by welding.

(q) For nonpressure vessel type tanks, the following additional fittings are required:

(1) A liquid level gaging device shall be provided to determine the level of the liquid cargo without opening the tank. The gage shall be readable from the open deck, or from a control room or station when the loading or discharging is controlled from such a room or station. Tables shall be readily available for direct determination of volume of liquid in the tanks, with necessary corrections for trim, temperature, and density.

(2) An independent high level alarm shall be provided for each tank. The alarm indication shall register at the station where loading is controlled.

(3) Each tank shall be provided with remote reading temperature sensors located near both the cargo liquid level and the bottom of the tank. The temperature shall be read at the control station for loading and unloading cargo, if provided, otherwise near the cargo control valves.

(4) Each tank shall be fitted with a pressure and a vacuum gage which shall be read at the control station for loading and unloading cargo, if provided, otherwise near the cargo control valves. In addition, the liquid loading and discharge headers at the ship's shore connection station shall be fitted with pressure gages.

(r) Spaces surrounding cargo tanks shall be provided with suitable means for pumping out.

(1) Where pressure vessel type tanks are installed or in other cases where no secondary containment is required, this may consist of a bilge system independent of the bilge system for the rest of the vessel, and having no pipe connections between the cargo tank spaces and the engineroom or boilerroom, except that eductors may be supplied from engineroom pumps.

(2) Secondary containment spaces of structurally self-supporting tanks shall be provided with suitable means for pumping out leaked cargo. These should be arranged so as to provide the following alternatives:

(i) Return of the cargo to the same primary tank or other tank.

(ii) Pumping the cargo off the ship either in port through a regular shore unloading connection or at sea overboard in a safe manner.

[CGFR 66–33, 31 F.R. 15269, Dec. 6, 1966, as amended by CGFR 68–82, 33 F.R. 18807, Dec. 18, 1968]

§ 38.10–5 Filling and discharge pipes—TB/ALL.

(a) Filling and discharge connections shall be provided with the manually operated valve required by § 38.10–1(i) and with a positive acting remote controlled quick-closing valve. The remote controlled quick-closing valve shall satisfy the requirements of § 38.10–1(j).

(b) For pressure vessel type tanks the remote controlled quick-closing valves shall be located on the inside of the tank or on the outside where the piping enters the tank. For pressure vessel type tanks operating at low pressure and with service temperature near the cargo atmospheric boiling point, the Commandant may approve individual installations where these valves are located at the loading and discharge headers.

(c) For nonpressure vessel type tanks the remote controlled quick-closing valves may be located at the loading and discharge headers.

§ 38.10–10 Cargo piping—TB/ALL.

(a) The piping shall be designed for a working pressure of not less than the maximum pressure to which it may be subjected but in no case less than the design pressure of the cargo tanks. In the case of piping on the discharge side of the liquid pumps or vapor compressors, the design pressure shall not be less than the pump or compressor discharge relief valve setting; or, provided the piping is not protected by relief

valves, the design pressure shall not be less than the total discharge head of the pump or compressor.

(b) Piping subject to tank pressure shall be seamless drawn steel or electric resistance welded steel. Pipe used in refrigerated tank systems shall be of a material which is suitable for the minimum service temperature to which it may be subjected, according to the requirements of Part 56 of Subchapter F (Marine Engineering) of this chapter.

(c) Piping shall be provided with adequate support to take the weight of the piping off valves and fittings and to prevent excessive vibration and stresses on tank connections.

(d) For nonpressure vessel type tanks, the cargo handling arrangements and piping shall provide for emptying of a damaged tank, including cargo contained by a secondary barrier.

[CGFR 66–33, 31 F.R. 15269, Dec. 6, 1966, as amended by CGFR 68–82, 33 F.R. 18807, Dec. 18, 1968]

§ 38.10–15 Safety relief valves—TB/ALL.

(a) Each tank shall be fitted with or (subject to approval by the Commandant) connected to one or more safety relief valves designed, constructed and flow tested for capacity in conformance with Subpart 162.017 or 162.018 of Subchapter Q (Specifications) of this chapter.

(b) Safety relief valves conforming to Subpart 162.017 of Subchapter Q (Specifications) of this chapter may be used on tanks for a maximum pressure of 10 pounds per square inch gage. Safety relief valves conforming to Subpart 162.-018 of Subchapter Q (Specifications) of this chapter may be used for any pressure.

(c) The safety relief valves shall have a combined relieving capacity to discharge the greater of the following with not more than 20 percent rise in pressure (in the tank) above the maximum allowable pressure:

(1) The vapors evaporated by an ambient air temperature of 115° F. plus the maximum flow rate of the cargo filling pipes or,

(2) The vapors generated under fire exposure computed using the formulas of § 54.15–25(c) of Subchapter F (Marine Engineering) of this chapter.

(d) The safety relief valves shall meet the arrangement and inspection requirements of § 54.15–25 of Subchapter F (Marine Engineering) of this chapter.

(e) Means shall be provided to protect nonpressure vessel tanks from excessive external pressure.

(f) Void spaces between the primary and secondary barriers of nonpressure vessel type tanks shall be protected by relief devices. The relief setting shall not be higher than the void test pressure, and shall not exceed 90 percent of the setting of the safety relief valve protecting the primary tank.

[CGFR 68–82, 33 F.R. 18807, Dec. 18, 1968]

§ 38.10–20 Liquid level gaging devices—TB/ALL.

(a) Each tank shall be fitted with a liquid level gaging device of approved design to indicate the maximum level to which the tank may be filled with liquid:

(1) Between −20° F. and 130° F. for unrefrigerated service; or,

(2) Within the operating temperature range for tanks operating below atmospheric temperature.

(b) Liquid level gaging devices may be of the following types: Rotary tube, slip tube, magnetic, automatic float, or similar types approved by the Commandant. Except as otherwise provided in this section, fixed tube devices are not acceptable as the primary gaging device.

(c) All gaging devices shall be arranged so that the maximum liquid level for product being carried, to which the tank may be filled is readily determinable. The maximum gallonage capacity as required by § 38.15–1 shall be:

(1) Marked on the tank system nameplate or gaging device; or,

(2) Shown in the ullage tables.

(d) Gaging devices that require bleeding of the product to the atmosphere, such as the rotary tube, fixed tube, and slip tube, shall be so designed that the bleed valve maximum opening is not larger than a No. 54 drill size (0.055-inch diameter), unless provided with an excess flow valve.

(e) For pressure vessel type tanks each automatic float, continuous reading tape or similar type gage not mounted directly on the tank or dome shall be fitted with a shutoff device located as close to the tank as practicable. When

an automatic float gaging device, which gages the entire height of the tank is used, a fixed tube gage set in the range of 85 percent to 90 percent of the water capacity of the tank shall be provided in addition as a means of checking the accuracy of the automatic float gage, or other alternate means acceptable to the Commandant may be used.

(f) A gaging device shall be designed for a pressure at least equal to the maximum allowable pressure of the tank on which it is installed.

(g) Gage glasses of the columnar type are prohibited.

(h) Flat sight glasses may be used in the design of automatic float continuous reading tape gages: *Provided,* That such glasses shall be made of high strength material suitable for the operating temperatures of not less than one-half inch in thickness and adequately protected by a metal cover.

Subpart 38.15—Special Requirements

§ 38.15-1 Filling of tanks—TB/ALL.

(a) Refrigerated and semirefrigerated tanks shall be filled so that there is an outage of at least 2 percent of the volume of the tank at the temperature corresponding to the vapor pressure of the cargo at the safety relief valve setting. A reduction in the required outage may be permitted by the Commandant when warranted by special design considerations. Normally then, the maximum volume to which a tank may be loaded is:

$$V_L = \frac{0.98 d_r V}{d_L}$$

where:

V_L = maximum volume to which tank may be loaded.
V = volume of tank.
d_r = density of cargo at the temperature required for a cargo vapor pressure equal to the relief valve setting.
d_L = density of cargo at the loading temperature and pressure.

(b) Nonrefrigerated tanks shall be filled so that their filling densities shall not exceed the ratios indicated in Table 38.15-1(b).

(c) The "filling density" is defined as the percent ratio of the weight of the gas in a tank to the weight of water the tank will hold at 60° F.

TABLE 38.15-1(b)—MAXIMUM PERMISSIBLE FILLING DENSITIES FOR TANKS OPERATING AT OR NEAR AMBIENT TEMPERATURE

Specific gravity at 60° F.	Maximum permitted filling density		
	Unlagged tanks—water capacity		Lagged tanks—all capacities
	1,200 gal. and under	Over 1,200 gal.	
0.473-0.480	38	41	42
0.481-0.488	39	42	43
0.489-0.495	40	43	44
0.496-0.503	41	44	45
0.504-0.510	42	45	46
0.511-0.519	43	46	47
0.520-0.527	44	47	48
0.528-0.536	45	48	49
0.537-0.544	46	49	50
0.545-0.552	47	50	51
0.553-0.560	48	51	52
0.561-0.568	49	52	53
0.569-0.576	50	53	54
0.577-0.584	51	54	55
0.585-0.592	52	55	56
0.593-0.600	53	56	57
0.601-0.608	54	57	58
0.609-0.617	55	58	59
0.618-0.626	56	59	60
0.627-0.634	57	60	61

NOTE: Increase in filling densities to provide for seasonal changes may be considered by the Commandant upon presentation of factual evidence that safe operation can be effected.

§ 38.15-5 Cargo hose—TB/ALL.

(a) When the liquid and vapor line hoses used for loading and discharging the cargo are carried on board the vessel, they shall be of flexible metal and fabricated of seamless steel pipe and flexible joints of steel or bronze, or of other suitable material resistant to the action of the cargo. Hose used in refrigerated systems shall be suitable for the minimum temperature to which it may be subjected and shall be acceptable to the Commandant.

(b) Hose subject to tank pressure, or the discharge pressure of pumps or vapor compressors, shall be designed for a bursting pressure of not less than five times the maximum safety relief valve setting of the tank, pump, or compressor.

(c) Before being placed in service each new cargo hose, with all necessary fittings attached, shall be hydrostatically tested by its manufacturer to a pressure not less than twice its maximum working pressure nor more than two-fifth its bursting pressure. The hose shall be marked with its maximum working pressure, and if used in refrigerated service, its minimum temperature.

§ 38.15–10 Leak detection systems—T/ALL.

(a) A detection system shall be permanently installed to sense cargo leaks. The detectors shall be located within the space so as to permit the sensing of an initial leak and prevent an undetected gas accumulation. The sensitivity shall be in accordance with paragraph (b) of this section. The detectors shall be fitted in the following compartments:

(1) Between the primary and secondary barriers for nonpressure vessel type tanks.

(2) Cargo handling rooms and spaces containing cargo piping or cargo handling systems.

(3) All enclosed spaces, except tanks and cofferdams, which are separated from the cargo tanks by only the secondary barrier.

(4) Other spaces where gas concentrations might be expected.

(5) Cargo holds, containing pressure vessel type tanks and no cargo piping, are exempt from the requirements of this paragraph.

(b) The indicating instruments for the detection system shall be located on the bridge or at the cargo control station. An audio and visual warning shall be given before any gas concentration reaches 30 percent of the lower explosive limit. The alarm shall indicate both on the bridge and at the cargo control station. Sampling of each detector shall be at least once every half hour.

(c) Means shall be provided to measure the full range of cargo gas concentration in the spaces.

[CGFR 66–33, 31 F.R. 15269, Dec. 6, 1966, as amended by CGFR 68–65, 33 F.R. 19985, Dec. 28, 1968]

§ 38.15–15 Electrical installations—TB/ALL.

(a) All electrical installations shall comply with the requirements contained in this subchapter and in Subchapter J (Electrical Engineering) of this chapter for tank vessels, except as otherwise specified in this part.

(b) Spaces containing cargo pumps, compressors, and piping are considered as equivalent to a tank vessel pumproom, and no electrical devices, except Coast Guard approved intrinsically safe devices, shall be installed in these spaces. Electric motors shall be segregated from these spaces by a gastight bulkhead. Electric lighting of the explosion-proof type may be installed in these spaces provided all switching is done from outside the space.

(c) All cargo tanks, piping, valves, etc., shall be effectively grounded to the vessel's hull. Tanks with an insulated inner shell (primary barrier) shall have an effective grounding bond to the outer shell (secondary barrier) or to the vessel's hull.

(d) Electric submerged motor cargo pumps may be used, when in compliance with the following requirements and subject to approval by the Commandant.

(1) Design details of the submerged motor pump, with an evaluation of the cooling efficiency of the product being pumped, shall be submitted.

(2) Provisions shall be made to exclude air from the tanks containing cargo in either vapor or liquid phase. The pump motor shall be deenergized when this condition is not satisfied.

(3) A liquid level sensing device shall automatically shut down the motor and sound an alarm at a predetermined low liquid level. The alarm location may be the station from which cargo handling is controlled or such other location outside the cargo area as is acceptable to the Commandant.

(4) Details of the power cable, tank penetrations and pump connections shall be submitted.

(5) An auxiliary means of emptying the cargo tanks shall be provided in accordance with § 38.10–10(d).

(6) Means for positively disconnecting the power supply between the switchboard and the pump power panel shall be provided, i.e., disconnect links, lockable breakers, etc.

(7) All materials used in the fabrication of the submerged motor cargo pumps shall be suitable for use with the liquid cargo at the design pressures and temperatures.

§ 38.15–20 Remote shutdowns—TB/ALL.

(a) All machinery associated with cargo loading, unloading, or cooling shall be capable of being shut down from a remote location. This location may be the station from which the cargo handling is controlled or such other location outside the cargo area as is acceptable to the Commandant.

Subpart 38.20—Venting and Ventilation

§ 38.20–1 Venting—T/ALL.

(a) Each safety relief valve installed on a cargo tank shall be connected to a branch vent of a venting system which shall be constructed so that the discharge of gas will be directed vertically upward to a point which shall extend to a height above the weather deck equal to at least one-third the beam of the vessel and to a minimum of at least 10 feet, and shall terminate at a comparable distance from any other living or working space, ventilator inlet, or source of vapor ignition. When special conditions will prevent the vent line header outlets being permanently installed at a height above the deck of one-third the beam of the vessel, then an adjustable system shall be provided which, when extended vertically, shall be capable of reaching a height of one-third the beam of the vessel.

(b) The capacity of branch vents or vent headers shall depend upon the number of cargo tanks connected to such branch or header as provided for in the Table 38.20–1(b), and upon the total safety relief valve discharge capacity.

TABLE 38.20–1(b)—CAPACITY OF BRANCH VENTS OR VENT HEADERS

Number of cargo tanks:	*Percent of total valve discharge*
1 or 2	100
3	90
4	80
5	70
6 or more	60

(c) In addition to the requirements specified in paragraphs (a) and (b) of this section, the size of the branch vents or vent headers shall be such that the back pressure in the relief valve discharge lines shall not be more than 10 percent of the safety relief valve setting. In nonpressure vessel vent systems, however, where the maximum back pressure of 10 percent of the relief valve setting is insufficient to move the gases through any but an extremely large diameter vent pipe, the back pressure may exceed 10 percent provided:

(1) The pressure in the tank during venting does not exceed 120 percent of the tank maximum allowable pressure; and,

(2) The safety relief valve is sized to discharge the required capacity with the tank pressure and vent back pressure actually used.

(d) Return bends and restrictive pipe fittings are not permitted.

(e) Vents and headers shall be so installed as to prevent excessive stresses on safety relief valve mountings.

(f) The vent discharge riser shall be so located as to provide protection against mechanical injury and such discharge pipes shall be fitted with loose raincaps or other suitable means to prevent entrance of rain or snow.

(g) No valve of any type shall be fitted in the vent pipe between the safety relief valve and the vent outlets.

(h) Provisions shall be made to drain condensate from the vent header piping. Special precautions shall insure that condensate does not accumulate at or near the relief valves.

(i) Relief valves discharging liquid cargo shall not be connected to the branch vent or vent header lines from the cargo tanks. They may, however, be connected to an accumulator, the vapor space of which, may in turn, be connected to the vent header system. Relief valves in the cargo piping system may discharge back to the cargo tanks.

(j) Vapor discharged to the atmosphere in accordance with § 38.05–25(b) shall utilize valves separate from the safety relief valves.

§ 38.20–5 Venting—B/ALL.

(a) Safety relief valves on cargo tanks in barges may be connected to individual or common risers which shall extend to a reasonable height above the deck. An alternate arrangement consisting of a branch vent header system as required by § 38.20–1 may be installed. In any case, the provisions of § 38.20–1 (d) through (j) shall apply.

(b) Arrangements providing for venting cargo tanks at sea on unmanned barges will be considered by the Commandant upon presentation of plans.

§ 38.20–10 Ventilation—T/ALL.

(a) A power ventilation system shall be provided for compartments containing pumps, compressors, pipes, control spaces, etc. connected with the cargo handling facilities. These compartments shall be ventilated in such a way as to remove vapors from points near the floor level or bilges, or other areas where vapor concentrations may be expected. The compartments shall be equipped with

power ventilation of the exhaust type having capacity sufficient to effect a complete change of air in not more than 3 minutes equal to the volume of the compartment and associated trunks.

(b) The power ventilation units shall not produce a source of vapor ignition in either the compartment or the ventilation system associated with the compartment. Inlets to exhaust ducts shall be provided and located at points where concentrations of vapors may be expected. Ventilation from the weather deck shall be provided. Ventilation outlets shall terminate away from any openings to the interior part of the vessel a lateral distance at least equal to that specified in § 38.20-1(a). These outlets shall be so located as to minimize the possibility of recirculating contaminated air through the compartment.

(c) Means shall be provided for purging the following spaces of cargo vapors:

(1) The space surrounding nonpressure vessel type tanks, i.e., within the secondary barrier.

(2) The space surrounding pressure-vessel type tanks whose piping connections are below the weather deck in accordance with § 38.10-1(h).

(3) The space surrounding tanks whose manhole openings are below the weather deck in accordance with § 38.05-10(f).

(d) Power ventilation shall be provided for each auxiliary machinery or working space located on and accessible from the cargo handling deck. Such ventilation systems shall be designed to preclude the entry of cargo vapors into the space via the open access or the ventilation system itself.

[CGFR 66-33, 31 F.R. 15269, Dec. 6, 1966, as amended by CGFR 68-65, 33 F.R. 19985, Dec. 28, 1968]

Subpart 38.25—Periodic Tests and Inspections

§ 38.25-1 Tests and inspections—TB/ALL.

(a) Each tank shall be subjected to the tests and inspections described in this section in the presence of a marine inspector, except as otherwise provided in this part.

(1) An internal examination shall be made at least once in each 8 calendar years.

(2) An external examination of unlagged tanks and the visible parts of lagged tanks shall be made at each inspection for certification and at such other times as considered necessary.

(3) To the extent, and if, deemed necessary by the marine inspector sufficient insulation shall be removed from insulated tanks at least once in each 8 calendar years to permit spot external examination of the tanks and insulation. The marine inspector may require that the thickness of the tanks be gaged by an acceptable nondestructive means without additional removal of insulation.

(b) A hydrostatic test of 1½ times the maximum allowable pressure, as determined by the safety relief valve setting, shall be made at any time that the marine inspector considers such hydrostatic test necessary to determine the condition of the tank. In the case of cargo tanks operating at maximum allowable pressures reduced below the design pressure in order to satisfy special mechanical stress relief requirements, the hydrostatic test pressure shall be 1½ times the maximum allowable pressure times the factor (due to mechanical stress relief) of design pressure divided by maximum allowable pressure.

(c) For pressure vessels designed and/or supported such that they cannot safely be filled with water, the Commandant will consider a pneumatic test in lieu of the hydrostatic test. A leak test shall be performed in conjunction with the pneumatic test. Pneumatic testing shall be in accordance with Subchapter F (Marine Engineering) of this chapter.

(d) Nonpressure vessel type tanks shall be tested to a pressure equal to the pressure on the bottom of the tank under the design conditions listed in § 38.05-4(e).

(e) In the application of the requirements for testing of the cargo tanks, the test shall in no case be less severe than the worst anticipated service condition of the cargo loading.

(f) In the design and testing of the independent cargo tanks, consideration shall be given to the possibility of the independent tanks being subjected to external loads.

§ 38.25-5 Removal of defective tanks—TB/ALL.

If a tank fails to pass the tests prescribed in this subpart, it shall be removed from service unless otherwise authorized by the Commandant.

§ 38.25–10 Safety relief valves—TB/ALL.

(a) The cargo tank safety relief valves shall be inspected at least once in every 2 years.

(b) The safety relief valve discs shall be lifted from their seats in the presence of a marine inspector by either liquid, gas, or vapor pressure at least once every 4 years to determine the accuracy of adjustment and, if necessary, shall be reset.

PART 39—FLAMMABLE OR COMBUSTIBLE LIQUIDS HAVING LETHAL CHARACTERISTICS

Subpart 39.01—General

Sec.

39.01–1 Scope of regulations—TB/ALL.
39.01–5 Certificate of inspection—TB/ALL.

Subpart 39.05—Design, Arrangement, and Installation of Cargo Tanks

39.05–1 Design, construction, and arrangement—TB/ALL.
39.05–5 Markings—TB/ALL.
39.05–10 Installation—TB/ALL.

Subpart 39.10—Piping, Valves, Fittings, and Accessory Equipment

39.10–1 Valves and accessories—TB/ALL.
39.10–5 Piping and fittings—TB/ALL.
39.10–10 Safety relief and pressure-vacuum relief valves—TB/ALL.
39.10–15 Gaging devices—TB/ALL.

Subpart 39.15—Special Cargo Handling Requirements

39.15–1 Warning sign at gangway—TB/ALL.
39.15–5 Cargo discharge—TB/ALL.
39.15–10 Pump room controls—TB/ALL.

Subpart 39.20—Venting and Ventilation

39.20–1 Venting—TB/ALL.
39.20–5 Ventilation—TB/ALL.

Subpart 39.25—Periodic Inspections and Tests

39.25–1 Hydrostatic tests and inspection—TB/ALL.
39.25–5 Removal of defective tanks—TB/ALL.
39.25–10 Safety valves—TB/ALL.

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SOURCE: The provisions of this Part 39 contained in CGFR 65–50, 30 F.R. 16722, Dec. 30, 1965, unless otherwise noted.

Subpart 39.01—General

§ 39.01–1 Scope of regulations—TB/ALL.

(a) The regulations in this part contain requirements for the transportation of flammable or combustible liquids having lethal characteristics and defined as Class "B" or "C" poisons in §§ 146.25–10 and 146.25–15 of this chapter. The regulations covering the transportation in portable tanks of flammable or combustible liquids having lethal characteristics and defined as Class "B" or "C" poisons are contained in Part 146 of this chapter. The regulations covering the transportation in unmanned tank barges of the liquids listed in Table 30.25–5, of this subchapter, are contained in Subchapter O of this chapter.

[CGFR 70–10, 35 F.R. 3709, Feb. 25, 1970]

§ 39.01–5 Certificate of inspection—TB/ALL.

(a) Certificate of inspection shall be endorsed for the carriage of Class "B" or "C" poisonous liquids, as follows:

Inspected and approved for the carriage of flammable or combustible Class "B" or "C" poisonous liquids.

(R.S. 4421, as amended; 46 U.S.C. 399)

Subpart 39.05—Design, Arrangement, and Installation of Cargo Tanks

§ 39.05–1 Design, construction, and arrangement—TB/ALL.

(a) Cargo having a Reid vapor pressure not exceeding 14 pounds per square inch may be transported in tanks. cylindrical or rectangular, independent of the vessel's hull structure, or in tanks built integral with the vessel's hull and completely separated from the shell of the vessel by means of wing tanks, cofferdams, double bottoms or similar voids.

(b) Independent tanks shall be designed for a head of at least 8 feet above the top of the tank or the highest level the product may rise, whichever is the greater, using the specific gravity of the product to be carried. In general, plate less than 5/16 inch in thickness shall not be used in the fabrication of independent tanks unless otherwise approved by the Commandant.

(c) Tanks built integral with the vessel's hull shall conform with the scantling's requirements of the American Bureau of Shipping.

(d)(1) Cargo tanks transporting liquids having a Reid vapor pressure ex-

ceeding 14 pounds per square inch, or vented at a gage pressure exceeding 4 pounds per square inch, or where air or water pressure is used to discharge the cargo, shall be fabricated as an arc-welded pressure vessel and meet the applicable requirements of Subchapter F (Marine Engineering) of this chapter.

(2) Unfired pressure vessel cargo tanks shall be designed for a pressure of not less than the vapor pressure, in pounds per square inch gage, of the lading at 115° F., or the maximum air or water pressure used in discharging cargo, whichever is greater, but in no case shall the design pressure of such tanks be less than 30 pounds per square inch.

(3) The plate thickness of unfired pressure vessel type cargo tanks shall be not less than 5/16 inch. Dished heads shall be used in the design of the tanks.

(e) Each tank shall be provided with not less than a 15-inch by 18-inch or an 18-inch diameter manhole, fitted with a cover and located as close as possible to the top of the tank. Where accesss trunks are fitted, the diameter or minimum dimension of the trunk shall be not less than 30 inches.

(R.S. 4433, as amended; 46 U.S.C. 411) [CGFR 65-50, 30 F.R. 16722, Dec. 30, 1965, as amended by CGFR 68-82, 33 F.R. 18807, Dec. 18, 1968]

§ 39.05-5 Markings—TB/ALL.

(a) Upon satisfactory completion of tests and inspection, pressure vessel tanks shall have markings as required by § 54.10-20 of Subchapter F (Marine Engineering) of this chapter.

(b) In addition to the aforementioned markings, the following inscription shall be stamped on the tank, or a corrosion-resistant plate containing this data shall be securely attached thereto:

This tank shall not contain a product having a vapor pressure in excess of ___ p.s.i. gage at 115° F.

(c) All tank markings shall be permanently and legibly stamped in a readily visible position, and shall not be obscured by painting.

[CGFR 65-50, 30 F.R. 16722, Dec. 30, 1965, as amended by CGFR 68-82, 33 F.R. 18807, Dec. 18, 1968]

§ 39.05-10 Installation—TB/ALL.

(a) Cargo tanks independent of the hull shall be installed with a clearance of not less than 24 inches from the vessel's sides. A working space of not less than 15 inches shall be provided around and under each tank, or provision shall be made for moving the tanks to secure adequate clearance for inspection and maintenance.

(b) Independent tanks shall be mounted on substantial steel saddles securely held down and chocked. Tank saddles shall be designed so as to minimize the concentration of excessive loads at any point on the shell.

(c) Tanks may be located in hold spaces or in other cargo tanks meeting the requirements for cofferdams as prescribed in § 32.60-10 or § 32.65-15, and may be installed "on deck" or "under deck" with the tank protruding above deck. On installations where a portion of the tank extends through the weather deck, provision shall be made to maintain the watertightness of the deck. Where such tanks are installed in bulk liquid cargo tanks, the liquids in the surrounding tanks shall be inert to the toxic or poisonous liquids at temperatures of 100° F. and under, at atmospheric pressure.

(d) All tanks shall be installed with manhole openings and fittings located above the weather deck.

(e) No strength welding employed in the attachment of supports, lugs, fittings, etc. shall be done on tanks that require and have been stress-relieved, unless authorized by the Commandant.

Subpart 39.10—Piping, Valves, Fittings, and Accessory Equipment

§ 39.10-1 Valves and accessories—TB/ALL.

(a) All shutoff valves and accessory equipment shall be of types suitable for use with the cargo to be carried. Gray iron castings shall not be employed in the construction of valves, fittings or flanges located outside the cargo tanks.

(b) All connections to tanks, except safety relief valves, pressure-vacuum relief valves, or gaging connections, shall have shutoff valves located as close to the tank as practicable.

§ 39.10-5 Piping and fittings—TB/ALL.

(a) Piping shall be suitable for use with the liquid cargo to be carried and shall conform to the requirements of Part 56 of Subchapter F (Marine Engineering) of this chapter. Piping shall be of seamless drawn material, except that electric resistance-welded steel piping will be acceptable.

(b) All pipe connections on pressure vessel tanks shall be grouped in the

smallest practicable space and shall be located near the highest point on the tank. Alternate piping arrangements may be considered for approval by the Commandant.

(c) The pumps and cargo piping used for loading and discharging Class "B" or "C" poisons shall be independent of all other piping.

(d) Where multiple cargoes are carried, and the cargo piping conveying Class "B" or "C" poisons are led through cargo tanks containing other products the piping shall be encased in a tunnel.

(e) Where cargo lines for handling other products, or bilge and ballast piping are led through cargo tanks containing Class "B" or "C" poisons, the piping shall be encased in a tunnel.

(f) Where possible provision shall be made for expansion and contraction of piping by means of seamless steel pipe expansion bends. Corrugated expansion joints may be used, provided satisfactory evidence is shown that space limitations do not permit the use of expansion bends. Slip type expansion joints are prohibited. [CGFR 65-50, 30 F.R. 16722, Dec. 30, 1965, as amended by CGFR 68-82, 33 F.R. 18807, Dec. 18, 1968]

§ 39.10-10 Safety relief and pressure-vacuum relief valves—TB/ALL.

(a) Each pressure vessel type cargo tank shall be fitted with one or more approved safety relief valves, set to start to discharge at a pressure of not less than 90 percent of the design pressure of the tank, but not in excess of the design pressure. Safety relief valves shall have sufficient relieving capacity to prevent a pressure rise exceeding 20 percent above the design pressure of the tank.

(b) Safety relief valves for pressure type cargo tanks shall be attached to the tank near the highest point of the vapor space.

(c) Gravity type cargo tanks shall be fitted with an approved pressure-vacuum relief valve of not less than 2½-inch size, which shall be set at a pressure of not less than 3 pounds per square inch, but not in excess of the design pressure of the tank.

(d) Pressure-vacuum relief valves for gravity type cargo tanks may be installed on the expansion trunk or in the branch vent line between the expansion trunk and the vent header.

§ 39.10-15 Gaging devices—TB/ALL.

A closed gaging system shall be provided for determining the liquid level within the tanks.

Subpart 39.15—Special Cargo Handling Requirements

§ 39.15-1 Warning sign at gangway—TB/ALL.

When transferring bulk cargo a warning sign as provided in § 35.30-1(b) of this subchapter shall be displayed to warn persons on board or in the vicinity of the tanks.

§ 39.15-5 Cargo discharge—TB/ALL.

The use of gas or liquid pressure to discharge the cargo from gravity type cargo tanks is prohibited. Gas or liquid pressure may be used to discharge the cargo from pressure vessel type cargo tanks, provided authorization is granted by the Commandant.

§ 39.15-10 Pump room controls—TB/ALL.

Cargo pumps, valves and fittings used for the transfer of Class "B" or "C" poisons and installed in pump rooms located below the weather deck shall be provided with means of operation from a position above the freeboard deck.

Subpart 39.20—Venting and Ventilation

§ 39.20-1 Venting—TB/ALL.

(a) Vent pipes shall be connected to each safety relief or pressure vacuum-relief valve. Tanks carrying Class "B" or "C" poisons shall be vented independent of tanks carrying other products. Tanks carrying the same class products may be connected to a vent header system or each tank may be vented independently.

(b) The vent riser shall extend to a height above the weather deck equal to at least one-third the beam of the vessel and shall terminate at a comparable distance from any other living or working space, ventilator inlet, or source of vapor ignition. When special conditions prevent the vent outlets from being permanently installed at a height above the deck of one-third the beam of the vessel, an adjustable system shall be provided which, when extended vertically, shall reach a height of one-third the beam of the vessel.

(c) The safety relief valve may be fitted with a bypass having the full capacity of the relief valve and equipped with a manually operated stop valve to permit equalizing pressures during filling and discharging operations.

(d) Manned barges shall meet the requirements of this section.

[CGFR 65-50, 30 F.R. 16722, Dec. 30, 1965, as amended by CGFR 70-10, 35 F.R. 3710, Feb. 25, 1970]

§ 39.20-5 Ventilation—TB/ALL.

(a) Pump rooms located below the weather deck shall be fitted with power ventilation designed to assure sufficient air movement through the pump room to avoid accumulation of toxic vapors. The ventilation system shall be of the exhaust type having blower capacity sufficient to permit a change of air of at least 20 times per hour. At least two exhaust inlet ducts shall be provided and located near the floor level and at points where a concentration of toxic vapors may be expected. At least two fresh air inlet ducts shall be provided.

(b) Enclosed pump rooms located above the weather deck shall be fitted with power ventilation having an exhaust type blower of sufficient capacity to permit a change of air of at least 10 times per hour. The exhaust inlet ducts shall be located at points where a concentration of toxic vapors may be expected. At least one fresh air inlet duct shall be provided.

(c) The outlet duct exhausts shall terminate at a distance of at least six feet above the enclosed space or pump room and at least six feet from any entrance to the interior part of the vessel. The discharge end of the exhaust ducts shall be so located as to preclude the possibility of recirculating contaminated air through the pump room, or other spaces where personnel may be present.

Subpart 39.25—Periodic Inspections and Tests

§ 39.25-1 Hydrostatic tests and inspection—TB/ALL.

(a) Each pressure vessel tank shall be subjected to an internal examination biennially and to a hydrostatic test at the time of the periodic inspection on the fourth year after installation, and a like test shall be applied every fourth year thereafter.

(1) If there is evidence of corrosion of deterioration, the marine inspector may require additional internal examinations or hydrostatic tests at intermediate inspection periods.

(2) The hydrostatic test shall be equal to one and one-half times the design pressure. For lagged tanks the hydrostatic test shall be applied for a period of at least 20 minutes without pressure drop when portions of the jacket and lagging are not removed at intermediate inspection periods.

(3) Lagged tanks shall have a portion of the jacket and lagging removed on the lower portion of the shell as directed by the marine inspector at least once every eight years for external examination.

(b) Gravity tanks and cargo tanks constructed integral with the vessel's hull shall be inspected as prescribed in Subpart 31.10 of Part 31 of this subchapter. Lagged gravity type tanks shall be examined as required by paragraph (a) of this section.

§ 39.25-5 Removal of defective tanks—TB/ALL.

If a pressure vessel fails to pass the tests prescribed in this subpart, or is deemed by the marine inspector to be unsuitable for continued use, it shall be removed from service unless otherwise authorized by the Commandant.

§ 39.25-10 Safety valves—TB/ALL.

(a) The safety relief valve discs shall be lifted from their seats in the presence of a marine inspector by either liquid, gas or vapor pressure at least once every four years to determine accuracy of adjustment and, if necessary, shall be reset.

(b) The setting and operation of the pressure-vacuum relief valves shall be checked in the presence of a marine inspector at the instpection for certification an at such other times as considered necessary.

PART 40—SPECIAL CONSTRUCTION, ARRANGEMENT, AND OTHER PROVISIONS FOR CARRYING CERTAIN FLAMMABLE OR COMBUSTIBLE DANGEROUS CARGOES IN BULK

Subpart 40.01—Application

Sec.

40.01-1 General—TB/ALL.
40.01-5 Effective dates—TB/ALL.

Subpart 40.05—Ethylene Oxide

40.05-1 General—TB/ALL.
40.05-2 Tank vessel certification and other cargoes—TB/ALL.
40.05-5 How ethylene oxide may be carried—TB/ALL.
40.05-10 Design, construction and arrangement of cargo tanks—TB/ALL.
40.05-20 Installation of cargo tanks—TB/ALL.
40.05-30 Insulation—TB/ALL.
40.05-35 Cooling systems—TB/ALL.

Sec.
40.05-40 Valves, fittings, and accessories—TB/ALL.
40.05-45 Liquid level gaging devices—TB/ALL.
40.05-50 Filling and discharge pipes—TB/ALL.
40.05-55 Cargo piping—TB/ALL.
40.05-60 Safety relief valves—TB/ALL.
40.05-65 Filling density—TB/ALL.
40.05-69 Venting—TB/ALL.
40.05-73 Ventilation—TB/ALL.
40.05-75 Cargo hose—TB/ALL.
40.05-80 Electrical bonding—TB/ALL.
40.05-83 Special cargo handling requirements—TB/ALL.
40.05-85 Information board—TB/ALL.
40.05-87 Tests and inspections—TB/ALL.

Subpart 40.10—Propylene Oxide

40.10-1 General—T/ALL.
40.10-2 Tank vessel certification and other cargoes—TB/ALL.
40.10-5 How propylene oxide may be carried—TB/ALL.
40.10-10 Design, construction, and arrangement of pressure-vessel type cargo tanks—TB/ALL.
40.10-20 Installation of cargo tanks—T/ALL.
40.10-40 Valves, fittings, and accessories—TB/ALL.
40.10-45 Liquid level gaging device—TB/ALL.
40.10-50 Filling and discharge pipes—TB/ALL.
40.10-55 Cargo piping—TB/ALL.
40.10-60 Safety relief valves—TB/ALL.
40.10-65 Filling density—TB/ALL.
40.10-69 Venting—TB/ALL.
40.10-73 Ventilation—TB/ALL.
40.10-75 Cargo hose—TB/ALL.
40.10-80 Electrical bonding—TB/ALL.
40.10-83 Special cargo handling requirements—TB/ALL.
40.10-85 Warning signs and information cards—TB/ALL.
40.10-87 Tests and inspection—TB/ALL.

Subpart 40.15—Vinyl Chloride (Vinyl Chloride Monomer)

40.15-1 General—T/ALL.

AUTHORITY: The provisions of this Part 40 issued under R.S. 4405, as amended, 4417a, as amended, 4462, as amended, sec. 6(b)(1), 80 Stat. 938; 46 U.S.C. 375, 391a, 416, 49 U.S.C. 1655(b); 49 CFR 1.46(b) (35 F.R. 4959). Sec. 3, 68 Stat. 675; 50 U.S.C. 198; E.O. 11239, July 31, 1965, 30 F.R. 9671, 3 CFR, 1965 Supp., unless otherwise noted.

SOURCE: The provisions of this Part 40 contained in CGFR 65-50, 30 F.R. 16724, Dec. 30, 1965, unless otherwise noted.

Subpart 40.01—Application

§ 40.01-1 General—T/ALL.

The provisions of this part shall apply to all tank vessels and manned barges which carry in bulk any of the dangerous cargoes specifically noted in this part. The provisions of Subchapter O of this chapter shall apply to any unmanned tank barge which carries in bulk any of the cargoes listed in Table 30.25-5 of this subchapter.

[CGFR 70-10, 35 F.R. 3710, Feb. 25, 1970]

§ 40.01-5 Effective dates—TB/ALL.

(a) The provisions in Subpart 40.05 of this part shall be in effect on and after January 1, 1964.

(b) The provisions in Subpart 40.10 of this part shall be in effect on and after January 1, 1967.

[CGFR 66-33, 31 F.R. 15276, Dec. 6, 1966]

Subpart 40.05—Ethylene Oxide

§ 40.05-1 General—TB/ALL.

(a) Ethylene oxide transported under the provisions of this subpart shall be acetylene free.

(b) Ethylene oxide may be carried in tank barges or tankships in accordance with provisions of this subpart.

(c) No other product may be transported in tanks certified for ethylene oxide except that the Commandant may approve subsequent transportation of other products and return to ethylene oxide service if tanks, piping and auxiliary equipment are adequately cleaned to the satisfaction of the marine inspector.

§ 40.05-2 Tank vessel certification and other cargoes—TB/ALL.

(a) The certificate of inspection shall be endorsed as follows:

"Inspected and approved for the carriage of ethylene oxide in tank number(s) _____."

(b) Unless authorized by the Commandant, no other kind of cargo except methane, ethane, propane, butane and pentane shall be on board a tank vessel certificated for the carriage of ethylene oxide at the same time ethylene oxide in either the liquid or vapor state is present in any cargo tank. Ethylene oxide tanks shall not be installed in tanks intended for any other cargo.[1]

(R.S. 4421, as amended, 4472, as amended, 46 U.S.C. 399, 170)

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[1] Ethylene oxide may rearrange and/or polymerize violently, liberating large quantities of heat. A few of the most notable catalysts for this type of reaction are: anhydrous iron, tin and aluminum chlorides; pure iron and aluminum oxides; metallic potassium; alkali metal hydroxides; acids and organic bases. The speed of the reaction varies with the purity of the reactants, the temperature, the relative amount of each reactant, and the method of application.

§ 40.05–5 How ethylene oxide may be carried—TB/ALL.

(a) Ethylene oxide shall be carried in fixed, independent, pressure vessel type cargo tanks, designed, constructed, arranged and if necessary equipped with machinery to maintain the cargo temperature below 90° F. except as otherwise provided for in paragraph (c) of this section.

(b) Ethylene oxide shall be loaded at a temperature below 70° F.

(c) When ethylene oxide is to be transported at or near atmospheric pressure, the Commandant may permit the use of alternate methods of storage if it is shown to his satisfaction that a degree of safety is obtained consistent with the minimum requirements of this subpart.

(R.S. 4488, as amended; 46 U.S.C. 481)

§ 40.05–10 Design, construction and arrangement of cargo tanks—TB/ALL.

(a) All cargo tanks shall be constructed of a carbon steel or stainless steel acceptable to the Commandant. Impurities of copper, magnesium and other acetylide-forming metals shall be kept to a minimum. The chemical composition of all steel used shall be submitted to the Commandant for approval prior to fabrication. Neither aluminum nor copper and other acetylide-forming metals, such as silver, mercury, magnesium, and their alloys shall be used as materials of construction for tanks or equipment used in handling ethylene oxide.

(b) Cargo shall be transported in cylindrical pressure vessel tanks, independent of the vessel's hull structure and so arranged as to provide a minimum clearance of not less than 24 inches from the vessel's side and not less than 15 inches from the vessel's bottom to provide access for inspection. When more than one tank is installed in a vessel, the distance between such tanks shall be not less than 15 inches unless otherwise approved by the Commandant.

(c) Cargo tanks shall meet the requirements of Class I arc-welded unfired pressure vessels and shall be fabricated, inspected and tested in accordance with the applicable requirements of Subchapter F (Marine Engineering) of this chapter.

(d) Cargo tanks shall be designed for the maximum pressure of vapor or gas used in discharging the cargo but in no case shall the design pressure of such tanks be less than the seventy-five (75) pounds per square inch gage. The tank shell and heads shall not be less than $\frac{9}{16}$ inch thick. The design of tanks shall take into account the expected stresses due to internal pressure, static head and localized stress concentrations.

(e) Each tank shall be provided with not less than one 15- x 23-inch elliptical or 18-inch diameter manhole located above the maximum liquid level and as close as possible to the top of the tank. Where access trunks are fitted to the tanks, the diameter of the trunks shall be not less than 30 inches.

(R.S. 4433, as amended; 46 U.S.C. 411)

§ 40.05–20 Installation of cargo tanks—TB/ALL.

(a) Cargo tanks shall be located below deck in holds or enclosed spaces with the domes or trucks extended above the weather deck and terminating in the open. Provisions shall be made to maintain the watertightness of the deck by means of watertight seals around such domes or trunks. The holds or enclosed spaces, in which the ethylene oxide tanks are located, shall not be used for any other purpose. The weathertightness of the weatherdeck may not be required to be fully maintained on tankships operating on sufficiently protected waters.

(b) All cargo tanks shall be installed with the manhole openings and all tank connections located above the weather deck in the open.

(c) Tanks shall be suitably mounted on steel supports and anchored in place and suitably electrically bonded to the hull. Each tank shall be so supported as to prevent the excessive concentration of loads on the supporting portion of the tank shell. Collision chocks shall be installed to prevent any longitudinal shifting of and damage to the cargo tanks in the event of collision. The design shall show the manner in which the tanks are to be installed, supported and secured in the barge or vessel and shall be approved prior to the installation of the tanks.

(d) No welding of any kind shall be done on cargo tanks or supporting structure unless authorized by the Commandant.

[CGFR 65–50, 30 F.R. 16724, Dec. 30, 1965, as amended by CGFR 70–10, 35 F.R. 3710, Feb. 25, 1970]

§ 40.05–30 Insulation—TB/ALL.

(a) All cargo tanks, piping, valves, fittings, etc., which may contain ethylene oxide in either the liquid or vapor phase, including the vent risers, shall be insulated. Flanges need not be covered, but if covered a small opening shall be left at the bottom of the flange cover to detect leaks. Insulation shall be of an approved incombustible material suitable for use with ethylene oxide, which does not significantly lower the autoignition temperature and which does not react spontaneously with ethylene oxide. The insulation shall be of such thickness as to provide a thermal conductance of not more than 0.075 B.t.u. per square foot per degree fahrenheit differential in temperature per hour.

(b) Insulation shall be of an approved type complying with the requirements of Subpart 164.009 of Subchapter Q (Specifications) of this chapter. However, the Commandant may consider alternate proposals where it is demonstrated to his satisfaction that adequate protection against fire exposure will be provided. Insulation shall be of a vapor-proof construction, or shall have a vapor-proof coating of a fire-retardant material acceptable to the Commandant. All insulation, vapor barrier and adhesive material shall be of a type which does not lower the autoignition temperature of or react spontaneously with ethylene oxide. Insulation exposed to the weather shall have the vapor-proof coating covered with a removable sheet metal jacket, not less than 0.083-inch thickness, flashed around all openings so as to be weathertight. The sheet metal jacket may be omitted when the vapor barrier is inherently weather resistant. When a weather resistant vapor barrier is used, the insulation shall be protected by sheet metal in those areas subject to mechanical damage.

§ 40.05–35 Cooling systems—TB/ALL.

(a) When cooling systems are installed to maintain the temperature of the liquid below 90° F., at least two complete cooling plants, automatically regulated by temperature variations within the tanks shall be provided; each to be complete with the necessary auxiliaries for proper operation. The control system shall also be capable of being manually operated. An alarm shall be provided to indicate malfunctioning of the temperature controls. The capacity of each cooling system shall be sufficient to maintain the temperature of the liquid cargo at or below the design temperature of the system.

(b) An alternate arrangement may consist of three cooling plants, any two of which shall be sufficient to maintain the temperature of the liquid cargo at or below the design temperature of the system.

(c) Cooling systems requiring compression of ethylene oxide are prohibited.

§ 40.05–40 Valves, fittings, and accessories—TB/ALL.

(a) All valves, flanges, fittings, and accessory equipment shall be of a type suitable for use with ethylene oxide and shall be made of steel or stainless steel, or other materials acceptable to the Commandant. Impurities of copper, magnesium and other acetylide-forming metals shall be kept to a minimum. The chemical composition of all material used shall be submitted to the Commandant for approval prior to fabrication. Disks or disk faces, seats and other wearing parts of valves shall be made of stainless steel containing not less than 11 percent chromium. Mercury, silver, aluminum, magnesium, copper and their alloys shall not be used for any valves, gages, thermometers, etc. Gaskets shall be constructed of spirally wound stainless steel with "Teflon" or other suitable material. All packing and gaskets shall be constructed of materials which do not react spontaneously with or lower the autoignition temperature of ethylene oxide.

(b) The pressure rating of valves, fittings, and accessories shall be not less than the maximum pressure for which the cargo tank is designed or the shutoff head of the cargo pump, whichever is greater, but in no case less than 150 pounds per square inch, American Standards Association's standards. Welded fittings shall be used wherever possible and the number of pipe joints shall be held to a minimum. Threaded joints in the cargo liquid and vapor lines are prohibited.

(c) Each tank shall be provided with the necessary fill and discharge liquid and vapor shutoff valves, safety relief valves, liquid level gaging devices, thermometer well and pressure gage, which shall be accessible for convenient operation. All connections to tanks shall be made above the weather deck in the

open to a trunk or dome and shall be protected against mechanical damage and tampering. Other openings in the tanks, except as specifically permitted by this part, are prohibited.

(d) All connections to the tanks, except safety relief valves, shall have manually operated shutoff valves located as close to the tank as possible. These valves are in addition to those required by § 40.05-50.

(e) Excess flow valves, where installed, shall close automatically at the rated flow of vapor or liquid as specified by the manufacturer. The piping, valves, fittings and appurtenances protected by the excess flow valves, shall have a greater flow capacity than the rated flow of the excess flow valve.

(f) Pressure gage connections need not be equipped with excess flow valves if the openings are not larger than No. 54 drill size.

(g) Excess flow valves may be designed with a bypass, not to exceed a No. 60 drill size opening, to allow equalization of pressure.

(h) Relief valves shall be fitted in liquid and vapor lines which may be subject to excessive pressure due to thermal expansion when the lines are liquid full. The escape from these relief valves shall be piped to the venting system.

(i) The pressure gage connection shall be located at the highest practical point in the vapor space of the tank.

(j) The thermometer well shall terminate in the liquid space and shall be attached to the shell by welding with the end of the fitting being provided with a gastight screwed plug or bolted cover.

§ 40.05-45 Liquid level gaging devices—TB/ALL.

(a) Each tank shall be fitted with a liquid level gaging device of approved design to indicate the level to which the tank may be filled.

(b) Liquid level gaging devices may be the: Slip tube, magnetic, automatic float, or other types approved by the Commandant.

(c) Any gaging device that requires bleeding of the product to the atmosphere, such as the slip tube, shall be so designed that the bleed valve maximum opening is not larger than a No. 54 drill size, unless provided with an excess flow valve.

(d) The automatic float continuous reading tape gage, and similar types, shall be fitted with a shutoff valve located as close to the tank as practicable, which shall be designed to close automatically in the event of fracture of the external gage piping. An auxiliary gaging device shall always be used in conjunction with an automatic gaging device. This auxiliary device may be a duplication of the automatic device.

§ 40.05-50 Filling and discharge pipes—TB/ALL.

(a) Filling and discharge piping shall extend to within four inches of the bottom of the tank or sump pit if one is provided.

(b) In addition to the shutoff valve required by § 40.05-40(d), all tank connections larger than ½ inch inside pipe size, except safety relief valves and liquid level gaging devices, shall be fitted with either internal back pressure check valves or internal excess flow valves in conjunction with a quick closing stop valve operable from at least two remote locations. The quick closing stop valve shall be of the "fail safe" type acceptable to the Commandant and shall be equipped with a fusible plug designed to melt between 208° F. and 220° F., which will cause the quick closing valve to close automatically in case of fire. The quick closing valve shall be located as close to the tank as possible.

§ 40.05-55 Cargo piping—TB/ALL.

(a) Piping systems intended for ethylene oxide service shall not be used for any other product and shall be completely separate from all other systems. The piping system shall be designed so that no cross connections may be made either through accident or design.

(b) The piping system shall be designed for a working pressure of not less than the maximum pressure to which the system may be subjected, however, in no case shall the design pressure be less than 150 pounds per square inch. In the case of piping on the discharge side of the liquid pumps or vapor compressors, the design pressure shall be not less than the pump or compressor discharge relief valve setting; or, provided the piping is not fitted with relief valves, the design pressure shall not be less than the total discharge head of the pump or compressor.

(c) Piping shall be seamless drawn or electric resistance welded steel or stainless steel.

(d) Where necessary, provision shall be made for expansion and contraction

of piping by means of seamless pipe expansion bends or offsets. Suitable means shall be provided for maintaining the piping in a fixed position.

(e) Piping shall be provided with adequate support to take the weight of the piping off the valves and fittings and to prevent excessive vibration.

§ 40.05-60 Safety relief valves—TB/ALL.

(a) Each tank shall be fitted with one or more approved safety relief valves designed, constructed and flow-tested for capacity in conformance with Subpart 162.018 of Subchapter Q (Specifications) of this chapter.

(b) Each safety relief valve shall be set to start to discharge at not less than 75 pounds per square inch gage, nor more than the designed pressure of the tank.

(c) The safety relief valves shall meet the relief capacity, arrangement and inspection requirements of § 54.15-25 of Subchapter F (Marine Engineering) of this chapter, except that the inspection shall also indicate that the safety relief valves will start to discharge at a pressure of not less than 75 pounds per square inch gage.

(R.S. 4491, as amended; 46 U.S.C. 489)
[CGFR 68-82, 33 F.R. 18807, Dec. 18, 1968]

§ 40.05-65 Filling density—TB/ALL.

(a) The filling density shall not exceed 83 percent. Filling density is defined as the ratio of the weight of material which may be loaded into the tank to the weight of water the tank will hold at 60° F. expressed as a percentage.

§ 40.05-69 Venting—TB/ALL.

(a) Tanks carrying ethylene oxide shall be vented through the safety relief valves independent of tanks carrying other products. Each safety relief valve installed on a cargo tank shall be connected to a venting system consisting of a branch vent from each cargo tank connected to a vent header which shall extend to a height above the weather deck to at least one-third the beam of the vessel and shall terminate at a comparable distance from any working or living space, ventilator inlet, or source of vapor ignition. When special conditions would prevent the vent line or header outlets being permanently installed at a height above the deck of one-third the beam of the vessel, then an adjustable system shall be provided which, when extended vertically, shall be capable of reaching a height one-third of the beam of the vessel. During loading and unloading operations the displaced ethylene oxide vapor shall be returned to the loading facility.

(b) The capacity of branch vents or vent headers shall depend upon the number of cargo tanks connected to such branch or header vents as provided for in Table 40.05-69(b), and upon the total safety relief valve discharge.

TABLE 40.05-69(b)—CAPACITY OF BRANCH VENTS OR VENT HEADERS

Number of cargo tanks	Percent of total valve discharge
1 or 2	100
3	90
4	80
5	70
6 or more	60

(c) In addition to the requirements specified in paragraphs (a) and (b) of this section, the size of the branch vents or vent headers shall be such that the back pressure in the relief valve discharge lines shall not be more than 10 percent of the safety relief valve setting.

(d) Return bends and restrictive pipe fittings are not permitted.

(e) Vents and headers shall be so installed as to prevent excessive stresser on safety relief valve mountings.

(f) The vent discharge riser shall be so located as to provide protection against mechanical damage and such discharge pipes shall be fitted with loose raincaps or other suitable means to prevent entrance of rain or snow. A weather hood may be installed at the vent outlet providing it is of such design as not to direct the flow of vapor below the horizontal.

(g) No shutoff valve of any type shall be fitted in the vent piping between the safety relief valve and the vent outlets.

(h) Suitable provision shall be made for draining condensate which may accumulate in the vent piping.

(i) The outlet of each vent riser will be fitted with acceptable corrosion-resistant flame screen of suitable material or a flame arrestor suitable for use with ethylene oxide.

(j) Safety relief valves on cargo tanks in barges may be connected to individual or common risers which shall extend to a height of not less than one-third the

beam of the vessel but in no case less than seven feet above the deck. Alternate arrangements consisting of a branch vent header system may be installed. In any case, all other provisions of paragraphs (a) through (i) of this section apply.

[CGFR 65–50, 30 F.R. 16724, Dec. 30, 1965, as amended by CGFR 66–33, 31 F.R. 15276, Dec. 6, 1966]

§ 40.05–73 Ventilation—TB/ALL.

(a) All enclosed spaces within the hull shall be vented or ventilated in accordance with the provisions of this subchapter except as otherwise provided for in this subpart.

(b) The enclosed spaces on tankships and manned barges in which the cargo tanks are located shall be rendered inaccessible to personnel while the vessel is underway and shall be inerted by injection of a suitable inert gas or shall be well ventilated.

(c) The enclosed spaces on tankships and manned barges in which the cargo tanks are located, if an inerting system is not installed, shall be fitted with forced ventilation of such capacity to provide a complete change of air every three minutes and arranged in such a manner that any vapors lost into the space will be removed. The ventilation system shall be in operation at all times cargo is being loaded or discharged. No electrical equipment shall be fitted within the spaces or within 10 feet of the ventilation exhaust from these spaces.

(d) All ventilation machinery shall be of non-sparking construction and shall not provide a source of vapor ignition.

(e) Each vent shall be fitted with a flame screen of corrosion resistant wire which is suitable for use with ethylene oxide.

§ 40.05–75 Cargo hose—TB/ALL.

(a) Flexible metal hose fabricated of stainless steel or other acceptable material, resistant to the action of ethylene oxide, shall be fitted to the liquid and vapor lines during filling and discharging of the tanks.

(b) Hose subject to tank pressure shall be designed for a bursting pressure of not less than five times the maximum safety relief valve setting of the tank.

(c) Hose subject to discharge pressure of pumps or vapor compressors shall be designed for a bursting pressure of not less than five times the pressure setting of the pump or compressor safety relief valve.

(d) Before being placed in service, each new cargo hose, with all necessary fittings attached, shall be tested hydrostatically by the manufacturer to a pressure of not less than twice the maximum pressure to which it may be subjected in service. The hose shall be marked with the maximum pressure guaranteed by the manufacturer, and with the words "Certified For Ethylene Oxide".

(e) Cargo hose intended for ethylene oxide service shall not be used for any other products except those which are compatible with ethylene oxide.

(R.S. 4488, as amended; 46 U.S.C. 481)

§ 40.05–80 Electrical bonding—TB/ALL.

(a) Each cargo tank shall be electrically bonded to the hull. The vessel shall be electrically bonded to the shore piping prior to connecting the cargo hose. This electrical bonding shall be maintained until after the cargo hose has been disconnected and any spillage has been removed.

§ 40.05–83 Special cargo handling requirements—TB/ALL.

(a) Cargo shall be discharged by pumping or by displacement with nitrogen or other acceptable inert gas. In no case shall air be allowed to enter the system. During loading and unloading operations the vapor shall not be discharged to the atmosphere. Provisions shall be made to return all displaced vapor to the loading facility. The loading rate and the pressure applied to the tank to discharge the cargo shall be so limited that the safety relief valves will not be caused to open.

(b) The cargo shall be shipped under a suitable protective padding, such as nitrogen gas. When nitrogen gas is used, the gas padding system shall be so designed that the vapor space above the liquid cargo will be filled and maintained with a gas mixture of not less than 45 percent nitrogen. Other gases proposed for use as padding may be given consideration by the Commandant. Original charging only of protective gas padding at the loading facility is not considered adequate. A sufficient amount of spare inerting gas as approved by the Commandant shall be provided on the vessel in order to main-

tain the proper concentration of the gas in the event of normal leakage or other losses.

(c) Any padding gas selected should be at least 98.0 percent pure and free of reactive materials, such as ammonia, hydrogen sulfide, sulfur compounds, and acetylene.

(d) A water spray extinguishing system shall be provided in the area where loading and unloading operations are conducted. The system shall be designed to operate automatically in case of fire. The capacity and arrangement shall be of such as to effectively blanket the area in way of the loading manifold and exposed deck piping for ethylene oxide. The rate of discharge and the arrangement of piping and nozzles shall be such as to give a uniform distribution over the entire area protected. Additionally, means shall be provided for local and remote manual operation. The arrangement shall be such that any spilled cargo will be washed away. A water hose with pressure to the nozzle, when atmospheric temperatures permit, shall be connected ready for immediate use during filling and discharge operations and any spillage of ethylene oxide shall be immediately washed away.

(e) Prior to disconnecting shore lines, the pressure in the liquid and vapor lines shall be relieved through suitable valves installed at the loading header. The liquid and vapor discharged from these lines shall not be discharged to atmosphere.

(f) Prior to loading, a sample from the cargo tank will be taken to insure that the pad gas will meet the requirements of paragraph (b) of this section and that the oxygen content of the vapor space will be not more than 2.0 percent maximum. If necessary, a sample will be taken after loading to insure the vapor space meets this requirement.

(g) The owner, master or person in charge of any vessel subject to the provisions of this part shall insure that during cargo transfer operations the persons required by Subpart 35.35 of this subchapter shall be especially qualified in the handling of ethylene oxide.

(R.S. 4488, as amended; 46 U.S.C. 481)

§ 40.05-85 Information board—TB/ALL.

(a) A suitable information board shall be installed upon which shall be posted the information described in this section.

(b) The following information shall remain posted on board from time cargo transfer operations begin until the vessel is gas-free or changes cargo:

(1) Identification of the cargo.

(2) A description of the principal characteristics of the cargo.

(3) Instructions for the safe handling of the cargo, including operating procedures for maintaining the required cargo temperature.

(4) List and locations of all safety equipment.

(5) Emergency procedures.

(R.S. 4488, as amended; 46 U.S.C. 481)

§ 40.05-87 Tests and inspections—TB/ALL.

(a) Each tank shall be subjected to the tests and inspections described in this paragraph in the presence of a marine inspector, except as otherwise provided in this section.

(1) An internal examination shall be made at least once in each four calendar years.

(2) Sufficient insulation shall be removed from the tank at least once in each four calendar years for spot external examination of the tank.

(3) A hydrostatic test of 1½ times the design pressure shall be made at least once in each four years at the time the internal examination is made and at such other times as considered necessary by the marine inspector.

(4) The safety relief valves shall be tested by liquid, gas, or vapor pressure at least once every two years to determine the accuracy of adjustment and, if necessary, shall be reset. Ethylene oxide shall not be used as the testing medium.

(b) The cargo hose and piping shall be inspected and tested at least once in each two calendar years.

(1) The cargo hose and piping shall be subjected to a hydrostatic test of 1½ times the maximum pressure to which they may be subjected in service.

(2) If any leakage, seepage, or distortion is noted at any time, the hose shall be removed from service and replaced and/or the piping shall be repaired.

(3) In those cases where the cargo hose used is not part of the vessel's equipment, the senior deck officer shall determine that the provisions of this paragraph have been met before using such hose. A certificate of test, supplied by

the loading facility, will be considered as adequate for this determination.

(R.S. 4453, as amended, 4488, as amended; 46 U.S.C. 435, 481)

Subpart 40.10—Propylene Oxide

SOURCE: The provisions of this Subpart 40.10 contained in CGFR 66-33, 31 F.R. 15276, Dec. 6, 1966, unless otherwise noted.

§ 40.10-1 General—T/ALL.

(a) Propylene oxide transported under the provisions of this subpart shall be acetylene free.

(b) Propylene oxide may be carried in tankships in accordance with the provisions of this subpart.

(c) No other product may be transported in tanks certified for propylene oxide except that the Commandant may approve subsequent transportation of other products and return to propylene oxide service in tanks, piping and auxiliary equipment are adequately cleaned to the satisfaction of the marine inspector.

[CGFR 65-50, 30 F.R. 16724, Dec. 30, 1965, as amended by CGFR 70-10, 35 F.R. 3710, Feb. 25, 1970]

§ 40.10-2 Tank vessel certification and other cargoes—TB/ALL.

(a) The certificate of inspection shall be endorsed as follows:

Inspected and approved for the carriage of propylene oxide in tank number(s)_____.

(b) Unless authorized by the Commandant, no other kind of cargo except methane, ethane, propane, butane and pentane shall be on board a tank vessel certificated for the carriage of propylene oxide at the same time propylene oxide in either the liquid or vapor state is present in any cargo tank. Propylene oxide tanks shall not be installed in tanks intended for any other cargo.

(R.S. 4421, as amended, 4472, as amended; 46 U.S.C. 399, 170)

§ 40.10-5 How propylene oxide may be carried—TB/ALL.

(a) Propylene oxide shall be carried in fixed, independent pressure-vessel type cargo tanks except as otherwise provided in paragraph (b) of this section.

(b) The Commandant may permit the transportation of propylene oxide in other than pressure-vessel type cargo tanks if it is shown to his satisfaction that the proposed method of transportation affords a degree of safety consistent with the minimum requirements of this subpart.

(R.S. 4488, as amended; 46 U.S.C. 481)

§ 40.10-10 Design, construction, and arrangement of pressure-vessel type cargo tanks—TB/ALL.

(a) All cargo tanks shall be constructed of a carbon steel or stainless steel acceptable to the Commandant. Impurities of copper and other acetylide-forming metals shall be kept to a minimum. The chemical composition of all steel used shall be submitted to the Commandant for approval prior to fabrication. Copper and other acetylide forming metals, such as silver, mercury, and their alloys, shall not be used as materials of construction for tanks or equipment used in handling propylene oxide.

(b) Cargo shall be transported in cylindrical pressure-vessel tanks which are independent of the vessel's hull structure. Adequate clearance shall be provided for the inspection and maintenance of the tanks, or such tanks shall be made movable.

(c) Cargo tanks shall meet the requirements of Class II arc-welded unfired pressure vessels and shall be fabricated, inspected and tested in accordance with the applicable requirements of Subchapter F (Marine Engineering) of this chapter.

(d) Cargo tanks shall be designed for the maximum pressure expected to be encountered during loading, storing and discharging the cargo but in no case shall the design pressure of such tanks be less than thirty (30) pounds per square inch gage. The tank shell and heads shall not be less than 5/16 inch thick. The design of tanks shall take into account the expected stresses due to internal pressure, static head and localized stress concentration.

(e) Each tank shall be provided with not less than one 15 x 23-inch elliptical or 18-inch diameter manhole located above the maximum liquid level and as close as possible to the top of the tank. Where access trunks are fitted to the tanks, the diameter of the trunks shall be not less than 30 inches.

(R.S. 4433, as amended; 46 U.S.C. 411)

§ 40.10-20 Installation of cargo tanks—T/ALL.

(a) Cargo tanks shall be located below deck in holds or enclosed spaces with the domes or trunks extended above the

weather deck and terminating in the open. Provisions shall be made to maintain the watertightness of the deck by means of watertight seals around such domes or trunks. The holds or enclosed spaces, in which the propylene oxide tanks are located, shall not be used for any other purpose. The weathertightness of the weather deck may not be required to be fully maintained on tankships operating on sufficiently protected waters.

(b) All cargo tanks shall be installed with the manhole openings and all tank connections located above the weather deck in the open.

(c) Tanks shall be mounted on suitable supports, be anchored in place, and electrically bonded to the hull. Each tank shall be so supported as to prevent the excessive concentration of loads on the supporting portion of the tank shell. Collision chocks shall be installed to prevent any longitudinal shifting of and damage to the cargo tanks in the event of collision. The design shall show the manner in which the tanks are to be installed, supported, and secured in the barge or vessel and shall be approved prior to the installation of the tanks. Tanks on barges shall comply with the applicable sections of Subpart 32.63 of this subchapter.

(d) No welding of any kind shall be done on cargo tanks or supporting structure unless authorized by the Officer in Charge, Marine Inspection.

[CGFR 65–50, 30 F.R. 16724, Dec. 30, 1965, as amended by CGFR 70–10, 35 F.R. 3710, Feb. 25, 1970]

§ 40.10–40 Valves, fittings, and accessories—TB/ALL.

(a) All valves, flanges, fittings, and accessory equipment shall be of a type suitable for use with propylene oxide and shall be made of steel or stainless steel, or other materials acceptable to the Commandant. Impurities of copper and other acetylide-forming metals shall be kept to a minimum. The chemical composition of all material used shall be submitted to the Commandant for approval prior to fabrication. Disc or disc faces, seats, and other wearing parts of valves shall be made of stainless steel containing not less than 11 percent chromium. Mercury, silver, copper and their alloys shall not be used for any valves, gages, thermometers, etc. Gaskets shall be constructed of spirally wound stainless steel with "Teflon" or other suitable material. All packing and gaskets shall be constructed of materials which do not react spontaneously with or lower the autoignition temperature of propylene oxide.

(b) The pressure rating of valves, fittings, and accessories shall be not less than the maximum pressure for which the cargo tank is designed or the shutoff head of the cargo pump, whichever is greater, but in no case less than 150 pounds per square inch, American Standards Association's standards. Welded fittings shall be used wherever possible and the number of pipe joints shall be held to a minimum. Threaded joints in the cargo liquid and vapor lines are prohibited.

(c) Each tank shall be provided with the necessary fill and discharge liquid and vapor shutoff valves, safety relief valves, liquid level gaging devices, thermometer well and pressure gage, which shall be accessible for convenient operation. All connections to tanks shall be made above the weather deck in the open to a trunk or dome and shall be protected against mechanical damage and tampering. Other openings in the tanks, except as specifically permitted by this part, are prohibited unless specifically authorized by the Commandant.

(d) All connections to tanks, except safety relief valves and liquid gaging devices shall have manually operated shutoff valves located as close to the tank as possible. In addition, all liquid and vapor connections on pressure vessel type tanks except safety relief valves, liquid level gaging devices, and filling and discharge lines, shall be equipped with either an automatic excess flow valve or a remotely controlled quick-closing shutoff valve of the fail closed type. These valves, except when necessary for the operation of the system, shall remain closed.

(e) The control system for quick-closing shutoff valves shall be provided with a remote control in at least two locations and be of a type acceptable to the Commandant. The control system shall also be provided with a fusible element designed to melt between 208° F. and 220° F., which will cause the quick-closing shutoff valves to close in case of fire. The quick-closing shutoff valves shall be capable of local manual operation.

(f) Excess flow valves, where installed, shall close automatically at the rated flow of vapor or liquid as specified by the manufacturer. The piping, valves, fittings and appurtenances protected by the

excess flow valves, shall have a greater flow capacity than the rated flow of the excess flow valve.

(g) Pressure gage connections need not be equipped with excess flow valves if the openings are not larger than No. 54 drill size (0.055 inch diameter).

(h) Excess flow valves may be designed with a bypass not to exceed a No. 60 drill size (0.040 inch diameter) opening, to allow equalization of pressure.

(i) Relief valves shall be fitted in liquid lines which may be subject to excessive pressure due to thermal expansion when the lines are liquid full. The escape from these relief valves shall be piped to the venting system.

(j) The pressure gage connection shall be located at the highest practical point in the vapor space of the tank.

(k) The thermometer well shall terminate in the liquid space and shall be attached to the shell by welding with the end of the fitting being provided with a gastight screwed plug or bolted cover.

(R.S. 4433, as amended, 4488, as amended; 46 U.S.C. 411, 481)

§ 40.10–45 Liquid level gaging device—TB/ALL.

(a) Each tank shall be fitted with a liquid level gaging device of approved design to indicate the level to which the tank may be filled.

(b) Liquid level gaging devices may be the slip tube, magnetic, automatic float, differential pressure, or other types approved by the Commandant.

(c) Any gaging device that requires bleeding of the product to the atmosphere, such as the slip tube, shall be so designed, that the bleed valve maximum opening is not larger than a No. 54 drill size (0.055 inch diameter), unless provided with an excess flow valve.

(d) The automatic float continuous reading tape gage, and similar types, shall be fitted with a shutoff valve located as close to the tank as practicable, which shall be designed to close from a remote position in the event of fracture of the external gage piping. An auxiliary gaging device shall always be used in conjunction with an automatic gaging device. This auxiliary device may be a duplication of the automatic device.

§ 40.10–50 Filling and discharge pipes—TB/ALL.

(a) Filling piping shall extend to within 4 inches of the bottom of the tank or sump pit if one is provided.

(b) Filling and discharge connections shall be provided with the manually operated valve required by § 40.10–40(d) and with a positive acting remote controlled quick-closing valve. The remote controlled quick-closing valve shall satisfy the requirements of § 40.10–40(e).

(c) For pressure vessel type tanks the remote controlled quick-closing valves shall be located on the inside of the tank or on the outside where the piping enters the tank.

(d) For nonpressure vessel type tanks the remote controlled quick-closing valves may be located at the loading and discharge headers.

§ 40.10–55 Cargo piping—TB/ALL.

(a) When propylene oxide is carried on board a vessel, piping systems in propylene oxide service shall not be used for any other product and shall be completely separate from all other systems. The piping system shall be designed so that no cross connection may be made through inadvertence.

(b) The piping system shall be designed for a working pressure of not less than the maximum pressure to which the system may be subjected, however, in no case shall the design pressure be less than 150 pounds per square inch. In the case of piping on the discharge side of the liquid pumps or vapor compressors, the design pressure shall be not less than the pump or compressor discharge relief valve setting; or, provided the piping is not fitted with relief valves, the design pressure shall not be less than the total discharge head of the pump or compressor.

(c) Piping shall be seamless drawn or electric resistance welded steel or stainless steel.

(d) Where necessary, provision shall be made for expansion and contraction of piping by means of seamless pipe expansion bends or offsets. Suitable means shall be provided for maintaining the piping in a fixed position.

(e) Piping shall be provided with adequate support to take the weight of the piping off the valves and fittings and to prevent excessive vibration.

§ 40.10–60 Safety relief valves—TB/ALL.

(a) Each tank shall be fitted with one or more approved safety relief valves designed, constructed and flow-tested for

capacity in conformance with Subpart 162.018 of Subchapter Q (Specifications) of this chapter.

(R.S. 4491, as amended; 46 U.S.C. 489)

(b) Each safety relief valve shall be set to start to discharge at not less than 30 pounds per square inch gage, nor more than the design pressure of the tank.

(c) The safety relief valves shall meet the relief capacity, arrangement and inspection requirements of § 54.15–25 of Subchapter F (Marine Engineering) of this chapter, except that the inspection shall also indicate that the safety relief valves will start to discharge at a pressure of not less than 30 pounds per square inch gage.

[CGFR 68–82, 33 F.R. 18808, Dec. 18, 1968]

§ 40.10–65 Filling density—TB/ALL.

(a) Filling density shall not exceed 80 percent. Filling density is defined as the ratio of the weight of material which may be loaded into the tank to the weight of water the tank will hold at 60° F. expressed as a percentage.

§ 40.10–69 Venting—TB/ALL.

(a) Tanks carrying propylene oxide shall be vented through the safety relief valves independent of tanks carrying other products. Each safety relief valve installed on a cargo tank shall be connected to a venting system consisting of a branch vent from each cargo tank connected to a vent header which shall extend to a height above the weather deck to at least one-third the beam of the vessel and shall terminate at a comparable distance from any working or living space, ventilator inlet, or source of vapor ignition. When special conditions would prevent the vent line or header outlets being permanently installed at a height above the deck of one-third the beam of the vessel, then an adjustable system shall be provided which, when extended vertically, shall be capable of reaching a height one-third of the beam of the vessel. During loading and unloading operations the displaced propylene oxide vapor shall be returned to the loading facility.

(b) The capacity of branch vents or vent headers shall depend upon the number of cargo tanks connected to such branch or header vents as provided for in Table 40.10–69(b), and upon the total safety relief valve discharge.

Table 40.10–69(b)—Capacity of Branch Vents or Vent Headers

Number of cargo tanks	Percent of total valve discharge
1 or 2	100
3	90
4	80
5	70
6 or more	60

(c) In addition to the requirements specified in paragraphs (a) and (b) of this section, the size of the branch vents or vent headers shall be such that the back pressure in the relief valve discharge lines shall not be more than 10 percent of the safety relief valve setting.

(d) Return bends and restrictive pipe fittings are not permitted.

(e) Vents and headers shall be so installed as to prevent excessive stresses on safety relief valve mountings.

(f) The vent discharge riser shall be so located as to provide protection against mechanical damage and such discharge pipes shall be fitted with loose raincaps or other suitable means to prevent entrance of rain or snow. A weather hood may be installed at the vent outlet providing it is of such design as not to direct the flow of vapor below the horizontal.

(g) No shutoff valve of any type shall be fitted in the vent piping between the safety relief valve and the vent outlets.

(h) Suitable provision shall be made for draining condensate which may accumulate in the vent piping.

(i) The outlet of each vent riser will be fitted with acceptable corrosion-resistant flame screen of suitable material or a flame arrestor suitable for use with propylene oxide.

(j) Safety relief valves on cargo tanks in barges may be connected to individual or common risers which shall extend to a height of not less than one-third the beam of the vessel but in no case less than 7 feet above the deck. Alternate arrangements consisting of a branch vent header system may be installed. In any case, all other provisions of paragraphs (a) through (i) of this section apply.

§ 40.10–73 Ventilation—TB/ALL.

(a) All enclosed spaces within the hull shall be vented or ventilated in accordance with the provisions of this subchapter except as otherwise provided for in this subpart.

(b) The enclosed spaces on tankships and manned barges in which the cargo tanks are located shall be rendered inaccessible to personnel while the vessel is underway and shall be inerted by injection of a suitable inert gas or shall be well ventilated.

(c) The enclosed spaces on tankships and manned barges in which the cargo tanks are located, if an inerting system is not installed, shall be fitted with forced ventilation of such capacity to provide a complete change of air every 3 minutes and arranged in such a manner that any vapors lost into the space will be removed. The ventilation system shall be in operation at all times cargo is being loaded or discharged. No electrical equipment shall be fitted within the spaces or within 10 feet of the ventilation exhaust from these spaces.

(d) All ventilation machinery shall be of nonsparking construction and shall not provide a source of vapor ignition.

(e) Each vent shall be fitted with a flame screen of corrosion-resistant wire which is suitable for use with propylene oxide.

§ 40.10–75 Cargo hose—TB/ALL.

(a) When the cargo hose is carried on board the vessel as part of its normal equipment, it shall meet the following requirements:

(1) Only flexible metal hose, fabricated of stainless steel or other acceptable metal, resistant to the action of propylene oxide, shall be used during filling and discharging of the tanks.

(2) Hose subject to tank pressure shall be designed for a bursting pressure of not less than five times the maximum safety relief valve setting of the tank.

(3) Hose subject to discharge pressure of pumps or vapor compressors shall be designed for a bursting pressure of not less than five times the pressure setting of the pump or compressor safety relief valve.

(4) Before being placed in service, each new cargo hose, with all necessary fittings attached, shall be tested hydrostatically by the manufacturer to a pressure of not less than twice the maximum pressure to which it may be subjected in service. The hose shall be marked by the manufacturer, with the maximum guaranteed pressure and with the words "Certified For Propylene Oxide".

(5) Cargo hose intended for propylene oxide service shall not be used for any other products except those which are compatible with propylene oxide.

(R.S. 4488, as amended, 46 U.S.C. 481)

§ 40.10–80 Electrical bonding—TB/ALL.

(a) Each cargo tank shall be electrically bonded to the hull. The vessel shall be electrically bonded to the shore piping prior to connecting the cargo hose. This electrical bonding shall be maintained until after the cargo hose has been disconnected and any spillage has been removed.

§ 40.10–83 Special cargo handling requirements—TB/ALL.

(a) Cargo shall be discharged by pumping or by displacement with nitrogen or other acceptable inert gas. In no case shall air be allowed to enter the system. During loading and unloading operations the vapor shall not be discharged to the atmosphere. Provisions shall be made to return all displaced vapor to the loading facility. The loading rate and the pressure applied to the tank to discharge the cargo shall be so limited that the safety relief valves will not be caused to open.

(b) The cargo shall be shipped under a suitable protective padding, such as nitrogen gas. Other gases proposed for use as padding may be given consideration by the Commandant. Original charging only of protective gas padding at the loading facility is not considered adequate. A sufficient amount of spare inerting gas as approved by the Commandant shall be provided on the vessel in order to maintain the proper concentration of the gas in the event of normal leakage or other losses.

(c) Any padding gas selected should be at least 98.0 percent inert gases, and free of reactive materials.

(d) A water spray extinguishing system shall be provided in the area where loading and unloading operations are conducted. The system shall be designed to operate automatically in case of fire. The capacity and arrangement shall be such as to blanket effectively the area in way of the loading manifold and exposed deck piping for propylene oxide. The rate of discharge and the arrangement of piping and nozzles shall be such as to give a uniform distribution over the

entire area protected. Additionally, means shall be provided for local and remote manual operation. The arrangement shall be such that any spilled cargo will be washed away. A water hose with pressure to the nozzle, when atmospheric temperatures permit, shall be connected ready for immediate use during filling and discharge operations and any spillage of propylene oxide shall immediately be washed away.

(e) Prior to disconnecting shore lines, the pressure in the liquid and vapor lines shall be relieved through suitable valves installed at the loading header. The liquid and vapor discharged from these lines shall not be discharged to the atmosphere.

(f) Prior to loading, a sample from the cargo tank will be taken to insure that the pad gas will meet the requirements of paragraph (b) of this section and that the oxygen content of the vapor space will be not more than 2.0 percent maximum. If necessary, a sample will be taken after loading to insure the vapor space meets this requirement.

(g) The owner, master or person in charge of any vessel subject to the provisions of this part shall insure that during cargo transfer operations the persons required by Subpart 35.35 of this subchapter shall be especially qualified in the handling of propylene oxide.

(R.S. 4488, as amended, 46 U.S.C. 481)

§ 40.10-85 Warning signs and information cards—TB/ALL.

Vessels carrying propylene oxide in bulk shall comply with the applicable provisions of § 35.01-55 of this subchapter.

(R.S. 4488, as amended, 46 U.S.C. 481)

§ 40.10-87 Tests and inspection—TB/ALL.

(a) Each tank shall be subject to the tests and inspections described in this paragraph in the presence of a marine inspector, except as otherwise provided in this section.

(1) An internal examination shall be made at least once in each 4 calendar years.

(2) A hydrostatic test of 1½ times the design pressure shall be made at least once in each 4 years at the time the internal examination is made and at such times as considered necessary by the marine inspector.

(3) To the extent and if deemed necessary by the marine inspector sufficient insulation shall be removed from insulated tanks at least once in each 4 calendar years to permit spot external examination of the tanks and insulation. The marine inspector may require that the thickness of the tanks be gaged by an acceptable nondestructive means without removal of insulation.

(4) The safety relief valves shall be tested by liquid, gas, or vapor pressure at least once every 2 years to determine the accuracy of adjustment and, if necessary shall be reset. Propylene oxide shall not be used as the testing medium.

(b) The cargo hose shall be inspected and tested at least once in each 2 calendar years.

(1) The cargo hose and piping shall be subjected to a hydrostatic test of 1½ times the maximum pressure to which they may be subjected in service.

(2) If any leakage, seepage or distortion is noted at any time, the hose shall be removed from service and replaced and/or the piping shall be repaired.

(R.S. 4453, as amended, 4488, as amended; 46 U.S.C. 435, 481)

Subpart 40.15—Vinyl Chloride (Vinyl Chloride Monomer)

§ 40.15-1 General—T/ALL.

(a) The person in charge of cargo transfer shall ensure that—

(1) Cargo vapors are returned to the cargo tank or shore disposition for reclamation or destruction during cargo transfer operations;

(2) Continuous monitoring for vinyl chloride vapor leaks is conducted aboard a tank ship undergoing vinyl chloride transfer operations. Fixed or portable instrumentation may be utilized to ensure that personnel are not exposed to vinyl chloride vapor concentrations in excess of 1 ppm averaged over any eight hour period or 5 ppm averaged over any period not exceeding 15 minutes. The method of monitoring and measurement must have an accuracy (with a confidence level of 95 percent) of not less than plus or minus 50 percent from 0.25 through 0.5 ppm, plus or minus 35 percent from over 0.5 ppm through 1.0 ppm, and plus or minus 25 percent over 1.0 ppm;

(3) Cargo transfer operation is discontinued or corrective action is initiated by the person in charge to minimize exposure to personnel whenever a vinyl chloride vapor concentration in excess of 1 ppm is detected. If the vinyl chloride vapor concentration exceeds 5 ppm for

over 15 minutes, action to reduce the leak can be continued only if the respiratory protection requirements of 29 CFR 1910.93q(g) are met by all personnel in the area of the leak;

(4) Those portions of cargo lines which will be open to the atmosphere after piping is disconnected are free of vinyl chloride liquid and that the vinyl chloride vapor concentration in the area of the cargo piping disconnect points is not greater than 5 ppm;

(5) Any restricted gauge fitted on a tank containing vinyl chloride is effectively out of service by locking or sealing that device so that it cannot be used; and

(6) A restricted gauge is not to be used as a "check" on the required closed gauge, nor as a means of sampling.

(b) The words "Cancer-Suspect Agent" must be added to the warning sign required by 46 CFR 35.30–1(b).

(c) Signs bearing the legend:

CANCER—SUSPECT AGENT IN THIS AREA
PROTECTIVE EQUIPMENT REQUIRED
AUTHORIZED PERSONNEL ONLY

must be posted whenever hazardous operations, such as tank cleaning, are in progress.

(d) A tank ship undergoing cargo transfer operations must be designated a "regulated area" having access limited to authorized persons and requiring a daily roster of authorized persons who may board the ship.

(e) Employees engaged in hazardous operations, such as tank cleaning, must be provided and required to wear and use respiratory protection in accordance with the provisions of 29 CFR 1910.93q (g) and protective garments, provided clean and dry for each use, to prevent skin contact with liquid vinyl chloride.

[CGD 74–167R, 40 FR 17025, Apr. 16, 1975]

Appendix

SUBCHAPTER O—POLLUTION

PART 151—OIL POLLUTION REGULATIONS

Sec.
151.01 Purpose.
151.05 Vessels subject to regulations.
151.10 Definitions.
151.15 Oil Pollution Act of 1924, as amended.
151.20 Inspections and enforcement.
151.25 Boarding foreign vessels.
151.30 Prohibited zones.
151.35 Oil Record Book.
151.40 Penalties for violations.

INTERPRETATIVE RULES

151.50 Annex C of the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended.
Sec.
151.53 Seagoing tank barge tank arrangement and tank size limitations.

AUTHORITY: The provisions of this Part 151 issued under secs. 9–12, 75 Stat. 404, as amended, sec. 6(g)(5), 80 Stat. 941; 33 U.S.C. 1008–1011, 49 U.S.C. 1655(g)(5); Department of Transportation Order 1100.1, Mar. 31, 1967, 49 CFR 1.4(a)(3)(vii).

SOURCE: The provisions of this Part 151 contained in CGFR 67–67, 32 F.R. 14390, Oct. 18, 1967, unless otherwise noted.

§ 151.01 Purpose.

(a) The purpose of this part is to implement the Oil Pollution Act, 1961, as amended (33 U.S.C. 1001–1015), relating to the Oil Record Book required to be

maintained under specified conditions, and the publication of descriptions of prohibited zones, as well as the enforcement of the requirements regarding prevention of pollution of the sea by oil.

(b) The Oil Pollution Act, 1961, as amended (33 U.S.C. 1001–1015), implements the provisions of the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended. By section 17 of such act (33 U.S.C. 1015) it is stated that: "Any reference in any other law or rule or regulation prescribed pursuant to law to the 'International Convention for the Prevention of the Pollution of the Sea by Oil, 1954,' shall be deemed to be a reference to that Convention as revised by the 'Amendments of the International Convention for the Prevention of Pollution of the Sea by Oil, 1954,' which were adopted by a Conference of Contracting Governments convened at London on April 11, 1962." This amended Convention became effective on May 18, 1967.

§ 151.05 Vessels subject to regulations.

(a) Subject to the exceptions provided in paragraph (b) of this section, the regulations in this part apply to any seagoing vessel of any type whatsoever of American registry or nationality, including floating craft, whether self-propelled or towed by another vessel making a sea voyage. This includes a "tanker" which is a type of ship in which the greater part of the cargo space is constructed or adapted for the carriage of liquid cargoes in bulk and which is not, for the time being, carrying a cargo other than oil in that part of its cargo space.

(b) The following categories of vessels are excepted from all provisions of the regulations in this part:

(1) Tankers of under 150 gross tons, and other ships of under 500 gross tons.

(2) Ships for the time being engaged in the whaling industry when actually employed on whaling operations.

(3) Ships for the time being navigating the Great Lakes of North America and their connecting and tributary waters as far east as the lower exit of St. Lambert lock at Montreal in the Province of Quebec, Canada.

(4) Naval ships and ships for the time being used as naval auxiliaries.

(c) Foreign vessels to which the convention applies, while in the territorial waters of the United States, may be boarded, examined and required to produce records as provided in section 11, of the Oil Pollution Act of 1961, as amended (33 U.S.C. 1010).

§ 151.10 Definitions.

(a) The terms defined in section 2 of the Act of August 2, 1961, as amended (33 U.S.C. 1001), shall have the same meaning when used in the regulations in this part, except as follows:

(1) The term "prohibited zones" means the zones described in 33 U.S.C. 1011 and § 151.30.

(2) The term "Secretary" means the Secretary of Transportation or any person to whom he has delegated his authority in the matter concerned.

(b) For convenience the following definitions are copied from 33 U.S.C. 1001:

(1) The term "convention" means the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended.

(2) The term "from the nearest land" means from the baseline from which the territorial sea of the territory in question is established in accordance with the Geneva Convention on the Territorial Sea and the Contiguous Zone, 1958.

(c) The term "Commandant" means Commandant, U.S. Coast Guard, Department of Transportation, Washington, D.C. 20591.

§ 151.15 Oil Pollution Act of 1924, as amended.

(a) Nothing in the regulations of this part or in the Oil Pollution Act, 1961, as amended (33 U.S.C. 1001–1015), will be construed to change or modify the provisions of the Oil Pollution Act of 1924, as amended (secs. 1–8, 43 Stat. 605, 606, as amended; 33 U.S.C. 431–437).

§ 151.20 Inspections and enforcement.

(a) The Commandant hereby designates employees of the Corps of Engineers employed on river and harbor works, employees of any Corps of Engineers Harbor Supervisor, employees of the Bureau of Customs, and Commissioned, Warrant and Petty Officers of the U.S. Coast Guard to board vessels, to make inspections and require production of records, as required under the Oil Pollution Act of 1961, as amended (33 U.S.C. 1001–1015), and the regulations of this part.

(b) In enforcing the Oil Pollution Act of 1961, as amended, the officers and agents of the United States, designated in paragraph (a) of this section, shall have the power and authority and it

hall be their duty to swear out process nd to arrest and take into custody with r without process any person who may iolate any of said provisions: *Provided,* hat no person shall be arrested without rocess for a violation not committed in he presence of some one of the aforesaid fficials: *And provided further,* That henever any arrest is made under the rovisions of said section the person so rrested shall be brought forthwith be- ore a commissioner, judge, or court of he United States for examination of the ffenses alleged against him; and such ommissioner, judge, or court shall pro- eed in respect thereto as authorized by aw in cases of crimes against the United tates.

§ 151.25 Boarding foreign vessels.

(a) Representatives of the Secretary f Transportation, the Bureau of Cus- oms, and the U.S. Coast Guard may go n board, examine and require the pro- luction of records maintained on any oreign ship to which the convention pplies while the ship is within the ter- itorial jurisdiction of the United States s authorized by the Oil Pollution Act of 961, as amended (33 U.S.C. 1010). and he regulations of this part.

§ 151.30 Prohibited zones.

(a) All sea areas within 50 miles from he nearest land shall be prohibited ones.

(b) The following sea areas, insofar as hey extend more than 50 miles from the earest land, shall also be prohibited ones:

(1) *Pacific Ocean—Canadian Western Zone.* The Canadian Western Zone shall xtend for a distance of 100 miles from he nearest land along the west coast of anada.

(2) *North Atlantic Ocean, North Sea, nd Baltic Sea*—(i) *North-West Atlan- ic Zone.* The North-West Atlantic Zone hall comprise the sea areas within a line rawn from latitude 38°47′ N., longitude 3°43′ W., to latitude 39°58′ N., longitude 8°34′ W.; thence to latitude 42°05′ N., ongitude 64°37′ W.; thence along the ast coast of Canada at a distance of 100 iles from the nearest land.

(ii) *Icelandic Zone.* The Icelandic one shall extend for a distance of 100 iles from the nearest land along the oast of Iceland.

(iii) *Norwegian, North Sea, and Baltic ea Zone.* The Norwegian, North Sea, nd Baltic Sea Zone shall extend for a distance of 100 miles from the nearest land along the coast of Norway, and shall include the whole of the North Sea and of the Baltic Sea and its Gulfs.

(iv) *North-East Atlantic Zone.* The North-East Atlantic Zone shall include the sea areas within a line drawn between the following positions:

Latitude	*Longitude*
62° N.	2° E.;
64° N.	00°;
64° N.	10° W.;
60° N.	14° W.;
54°30′ N.	30° W.;
53° N.	40° W.;
44°20′ N.	40° W.;
44°20′ N.	30° W.;
46° N.	20° W.;

thence towards Cape Finisterre at the intersection of the 50-mile limit.

(v) *Spanish Zone.* The Spanish Zone shall comprise the areas of the Atlantic Ocean within a distance of 100 miles from the nearest land along the coast of Spain.

(vi) *Portuguese Zone.* The Portuguese Zone shall comprise the area of the Atlantic Ocean within a distance of 100 miles from the nearest land along the coast of Portugal.

(3) Mediterranean and Adriatic Seas—Mediterranean and Adriatic Zone. The Mediterranean and Adriatic Zone shall comprise the sea areas within a distance of 100 miles from the nearest land bordering the Mediterranean and Adriatic Seas along the coasts of Algeria, Arab Republic of Egypt, France, Greece, Israel, Italy, Lebanon, Libyan Arab Republic, Maltese Islands, Morocco. Spain, and Syria.

(4) *Black Sea and Sea of Azov.* The Black Sea and Sea of Azov Zone shall comprise the sea areas within a distance of 100 miles from the nearest land bordering the Black Sea and Sea of Azov along the coast of the Union of Soviet Socialist Republics.

(5) *Red Sea—Red Sea Zone.* The Red Sea Zone shall comprise the sea areas within a distance of 100 miles from the nearest land along the coasts of the United Arab Republic, Saudi Arabia, and Yemen.

(6) *Persian Gulf*—(i) *Kuwait Zone.* The Kuwait Zone shall comprise the sea area within a distance of 100 miles from the nearest land along the coast of Kuwait.

(ii) *Saudi Arabian Zone.* The Saudi Arabian Zone shall comprise the sea area within a distance of 100 miles from

the nearest land along the coast of Saudi Arabia.

(7) *Arabian Sea, Bay of Bengal, and Indian Ocean—Malagasy Zone.* The Malagasy Zone shall comprise the sea area within a distance of 100 miles from the nearest land along the coast of Madagascar west of the meridians of Cape d'Ambre in the north and of Cape Ste. Marie in the south and within a distance of 150 miles from the nearest land along the coast of Madagascar east of these meridians.

(8) *Australia—Australian Zone.* The Australian Zone shall comprise the sea area within a distance of 150 miles from the nearest land along the coasts of Australia, except off the north and west coasts of the Australian mainland between the point opposite Thursday Island and the point on the west coast at 20° S. latitude.

[CGFR 67–67, 32 FR 14390, Oct. 18, 1967, as amended by CGD 72–82R, 37 FR 16070, May 26, 1972; 37 FR 14302, June 19, 1972]

§ 151.35 Oil Record Book.

(a) An Oil Record Book printed by the U.S. Government is available without charge to the masters or operators of all vessels subject to the Oil Pollution Act of 1961, as amended (33 U.S.C. 1001–1015), through U.S. Coast Guard Marine Inspection Offices.

(b) The ownership of the Oil Record Book shall remain in the U.S. Government.

(c) If an operations listed in this paragraph occurs, the Oil Record Book must be completed in accordance with the requirements contained in paragraph (e) of this section.

(1) The following operation on a tanker must be recorded on a tank-to-tank basis:

(i) Loading of oil cargo.

(ii) Internal transfer of oil cargo during a voyage.

(iii) Opening or closing before and after loading and unloading operations of valves or similar devices that interconnect cargo tanks.

(iv) Opening or closing of means of communication between cargo piping and seawater ballast piping.

(v) Opening or closing of valves at hose connection points at ends of cargo transfer manifolds before, during, and after loading and unloading operations.

(vi) Unloading of oil cargo.

(vii) Ballasting of cargo tanks.

(viii) Cleaning of cargo tanks.

(ix) Discharge of ballast except from segregated ballast tanks.

(x) Discharge of water from slop tanks.

(xi) Disposal of residues.

(xii) Discharge overboard in port or at sea of bilge water accumulated in machinery spaces.

(2) The following operations on a ship other than a tanker must be recorded on a tank-to-tank basis:

(i) Ballasting, or cleaning during voyage, of bunker fuel tanks.

(ii) Disposal of oily residues from bunker fuel tanks or other sources.

(d) On each occasion a descriptive statement shall be entered in the Oil Record Book of the circumstances of, and reasons for:

(1) The discharge of oil or oily mixture from a ship for the purpose of securing the safety of the ship, preventing damage to the ship or cargo, or saving of life at sea; or,

(2) The escape of oil or an oily mixture resulting from—

(i) damage to the ship;

(ii) unavoidable leakage; or

(iii) any accident or other exceptional circumstance.

(3) The discharge of residue arising from the purification or clarification of fuel oil or lubricating oil; or,

(4) The discharge of oil or oily mixture from a ship of 20,000 gross tons or over for which the building contract is placed on or after May 18, 1967, including a tanker.

(e) Each entry in the Oil Record Book shall be made and dated on the day when such actions occur. When any action or operation extends over a period of more than one day, the date of entry shall not be later than the date on which the action or operation is completed. Each page of the Book shall be signed by the officer or officers in charge of the operation concerned and, when the ship is manned, by the master of the ship.

(f) The master of every vessel required to keep the Oil Record Book shall be responsible for the maintenance of such record and its delivery as required by this section.

(g) Upon completion of a foreign voyage the Oil Record Book shall be delivered to the U.S. Coast Guard Marine Inspection Office in the port where the voyage is terminated.

(h) The Oil Record Book maintained on a vessel when not engaged on a foreign voyage shall be submitted during the months of April and October with

itries for the preceding 6 months to ie Commander, 3d Coast Guard Dis- ict (m), New York, if the homeport located on the east or gulf coast; or the Commander, 12th Coast Guard istrict (m), San Francisco, if the home- ort of the vessel is located on the west ast.

t.S. 4417a (3) and (7), as amended (46 S.C. 391a (3) and (7); 49 CFR 1.46(d) (4) 0 CFR 3906) [CGFR 67-67, 32 FR 14390, Oct. , 1967, as amended by CGD 71-160R, 37 R 28253, Dec. 21, 1972; CGD 74-32, 40 FR 283, Oct. 14, 1975]

151.40 Penalties for violations.

(a) The provisions of subsection 9(f) the Oil Pollution Act of 1961, as nended (33 U.S.C. 1008), read as llows:

If any person fails to comply with the re- uirements imposed by or under this section, shall be liable on conviction to a fine not ceeding $1,000 nor less than $500 and if y person makes an entry in any records pt in accordance with this Act or regula- ons prescribed thereunder by the Secretary hich is to his knowledge false or misleading any material particular, he shall be liable conviction to a fine not exceeding $1,000 r less than $500 or imprisonment for a rm not exceeding 6 months, or both.

Interpretative Rules

151.50 Annex C of the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended.

Section 6 of the Oil Pollution Act, 1961, amended (33 U.S.C. 1001-1015) states at every tanker to which the Act ap- ies and built in the United States and r which the building contract is placed or after the effective date of section 6 all be constructed in accordance with nnex C of the International Convention r the Prevention of the Pollution of e Sea by Oil, 1954, as amended, relat- g to tank arrangement and limitation tank size. Annex C of the Interna- onal Convention for the Prevention Pollution of the Sea by Oil, 1954, as nended, reads as follows:

equirements Relating to Tank Arrangements and to the Limitation of Tank Size

. *Assumed extent of damage.* In the following para- phs three dimensions of the extent of damage of a rallelepiped due to both collision and stranding are umed. In the case of stranding, two conditions are set th to be applied individually to the stated portions of e ship. These values represent the maximum assumed mage in such accidents and are to be used to determine trial at all conceivable locations the worst combina- n of compartments which would be breached by such accident.

1.1 *Collision.*

Longitudinal extent (l_c)	$1/3L^{2/3}$ or 14.5 meters, whichever is less.
Transverse extent (t_c) inboard from the ship's side at right angles to the centreline at the level of the load line.	B/5 or 11.5 meters, whichever is less.
Vertical extent (v_c)	From the base line upward without limit.

1.2 *Stranding.*

	For 0.3L from the forward perpendicular of the ship	Any other part of the ship
Longitudinal extent (l_s)	L/10	5 meters.
Transverse extent (t_s)	B/6 or 10.0 meters, whichever is less.	5 meters.
Vertical extent (v_s) from the base line.	B/15 or 6 meters, whichever is less, for any part of the ship.	

Where: L, B in meters and perpendicular are as defined in regulation 3 of the International Convention on Load Lines, 1966.

2. Hypothetical oil outflow from tanks assumed to be breached as a result of the accident. The hypothetical oil outflow in the case of collision (O_c) and stranding (O_s) shall be calculated by the following formulae with respect to compartments breached by each assumed location of damage as defined in Section 1.

2.1 *Collision.*

$$O_c = \Sigma W_i + \Sigma K_i C_i \qquad (1)$$

2.2 *Stranding*

$$O_s = \frac{1}{3}(\Sigma Z_i W_i + \Sigma Z_i C_i) \qquad (2)$$

where:

W_i=Volume of a wing tank in cubic metres breached by the damage assumed in Section 1; W_i for a clean ballast tank may be taken equal to zero.

C_i=Volume of a centre tank in cubic metres breached by the damage assumed in Section 1; C_i for a clean ballast tank may be taken equal to zero,

$$K_i = 1 - \frac{b_i}{t_s};$$

When b_i is equal to or greater than t_s, K_i shall be taken equal to zero,

$$Z_i = 1 - \frac{h_i}{v_s};$$

When h_i is equal to or greater than v_s, Zi shall be taken equal to zero,

b_i=Width of wing tank in metres under consideration,

h_i=Minimum depth of the double bottom in metres under consideration; where no double bottom is fitted, h_i shall be taken equal to zero,

Wing tank=Any tank adjacent to the side shell plating,

Centre tank=Any tank inboard a longitudinal bulkhead.

2.3 *Special requirements.*

2.3.1 If a void space or clean water ballast tank of a length less than l_s as defined in 1.1 is located between wing oil tanks, O_s in formula (1) may be calculated on the basis of volume Wi being the actual volume of one such tank (where they are of equal capacity) or the smaller of the two tanks (if they differ in capacity) adjacent to such space, multiplied by Si as defined below and

tanking for all other wing tanks involved in such a collision the value of the actual full volume.

$$S_i = 1 - \frac{l_i}{l_s}$$

where:

l_i=Length in metres of void space or clean ballast tank under consideration.

2.3.2(a) Credit shall only be given in respect of double bottom tanks which are either empty or carrying clean water when cargo is carried in the tanks above.

(b) Where the double bottom does not extend for the full length and width of the tank involved, the double bottom is considered non-existent and the volume of the tanks above the area of the stranding damage shall be included in formula (2) even if the tank is not considered breached because of the installation of such a partial double bottom.

2.3.2(c) Suction wells may be neglected in the determination of the value h_i provided such wells are not excessive in area and extended below the tank for a minimum distance and in no case more than half the height of the double bottom. If the depth of such a well exceeds half the height of the double bottom, h_i shall be taken equal to the double bottom height minus the well height.

Piping serving such wells if installed within the double bottom shall be fitted with valves or other closing arrangements located at the point of connection to the tank served to prevent oil outflow in the event of damage of the piping during stranding. Such piping shall be installed as high from the bottom shell as possible.

2.3.3 In the case where stranding damage simultaneously involves four centre tanks, the value of O_s may be calculated according to the formula

$$O_s = \tfrac{1}{4}(\Sigma Z_i W_i + \Sigma Z_i C_i) \qquad (3)$$

2.3.4 An Administration may credit as reducing oil outflow in case of stranding, an installed cargo transfer system having an emergency high suction in each cargo oil tank, capable of transferring from a breached tank or tanks to segregated ballast tanks or to available cargo tankage if it can be assured that such tanks will have sufficient ullage. Credit for such a system would be governed by ability to transfer in two hours of operation, oil equal to one half of the largest of the breached tanks involved and by availability of equivalent receiving capacity in ballast or cargo tanks. The credit shall be confined to permitting calculation of O_s according to formula (3). The pipes for such suctions shall be installed at least at a height not less than the vertical extent of the stranding damage V_s.

The Administration shall supply the Organization with the information concerning the arrangements accepted by it, for circulation to other governments.

3. *Limitations of size of cargo oil tanks.*

3.1 *Limitation of hypothetical oil outflow.* The hypothetical oil outflow O_s or O_s calculated in accordance with the formulae in Section 2 shall not exceed 30,000 cubic metres or $400\sqrt[3]{DW}$, whichever is the greater but subject to a maximum of 40,000 cubic metres where: DW=deadweight of the ship in metric tons.

3.2 *Limitation of volume of single tank.* The volume of a wing tank shall not exceed seventy-five per cent of the limits of hypothetical oil outflow referred to in 3.1. The volume of a centre tank shall not exceed 50,000 cubic metres.

3.3 *Limitation of tank length.* The length of each tank shall not exceed 10 metres or one of the following values, whichever is the greater:

(a) Where no longitudinal bulkhead is provided 0.1L

(b) Where a longitudinal bulkhead is provided at the centreline only: 0.15L

(c) Where two or more longitudinal bulkheads are provided:

(i) For wing tanks: 0.2L

(ii) For centre tanks:

(1) If b_i/B [1] is equal to or greater than $\frac{1}{3}$: 0.2L

(2) If b_i/B [1] is less than $\frac{1}{3}$:

Where no centreline longitudinal bulkhead is provided:

$$\left(0.5\,\frac{b_i}{B}+0.1\right)L$$

Where a centreline longitudinal bulkhead is provided:

$$\left(0.25\,\frac{b_i}{B}+0.15\right)$$

(Sec. 11, 75 Stat. 404, as amended (33 U.S.C 1009); sec. 6(b)(1), 80 Stat. 937 (49 U.S.C 1655(b)(i); 49 CFR 1.46(c)(7)) [CGD 74 163, 39 FR 30125, Aug. 21, 1974; CGD 74–16 39 FR 31901, Sept. 3, 1974]

§ 151.53 Seagoing tank barge tank arrangement and tank size limitations

(a) *Purpose.* The purpose of this section is to interpret paragraph 3.3 of Annex C of the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended, to allow U.S. tank barge to be constructed with essentially the same bulkhead spacing as a tankship of comparable cargo capacity.

(b) *Applicability.* This section applies to a seagoing U.S. tank barge of 150 meters or less in length subject to the International Convention for the Prevention of the Pollution of the Sea by Oil, 1954, as amended, for which a building contract is placed after January 1, 1972, or in cases where no building contract has previously been placed, the keel is laid or the tank barge is at a similar stage of construction after June 30, 197

(c) *Interpretative adjusted cargo tank lengths.* The length of a tank in a tank barge to which this section applies must be designed either in compliance with paragraph 3.3 of Annex C set forth in § 151.50, or in compliance with one of the following values or less:

(1) If no longitudinal bulkhead is to be installed, .13L.

(2) If a longitudinal bulkhead is to be installed at the centerline only, .2L.

(3) If two or more longitudinal bulkheads are to be installed—

(i) For wing tanks, .26L;

(ii) For center tanks if $\frac{b_i}{B}$ is equal to or greater than ⅕, .26L;

(iii) For center tanks if $\frac{b_i}{B}$ is less than ⅕ with no centerline longitudinal bulkhead, $(0.5\ \frac{b_i}{B}+.13)L$; or

(vi) For center tanks if $\frac{b_i}{B}$ is less than ⅕ with centerline longitudinal bulkhead, $(0.25\ \frac{b_i}{B}+.2)L$.

[Sec. 11, 75 Stat. 404, as amended (33 U.S.C. 1009); sec. 6(b)(1), 80 Stat. 937 (49 U.S.C. 1655(b)(1)); 49 CFR 1.46(c)(7)) [CGD 74-163, 39 FR 30126, Aug. 21, 1974]

PART 153—CONTROL OF POLLUTION BY OIL AND HAZARDOUS SUBSTANCES, DISCHARGE REMOVAL

Subpart A—General

Sec.
153.101 Purpose.
153.103 Definitions.
153.105 Delegations.
153.107 Redelegation.

Subpart B—Notice of the Discharge of Oil or a Hazardous Substance

153.201 Purpose.
153.203 Procedure for the notice of discharge
153.205 Fines.

Subpart C—Removal of Discharged Oil

153.301 Purpose.
153.303 Applicability.
153.305 Methods and Procedures for the Removal of Discharged Oil.
153.307 Penalties.

Subpart D—Administration of the Pollution Fund

153.401 Purpose.
153.403 Applicability.
153.405 Liability to the pollution fund.
153.407 Payments or reimbursement from the pollution fund.
153.411 Procedures for payment of judgments.
153.413 Deposit of money into the fund.
153.415 OSC and AC Reports.
153.417 Reimbursement for actions under Section 311(c) of the Act.
153.419 Reimbursement for actions under Section 311(d) of the Act.

AUTHORITY: Sec. 311(j)(1)(A) and (m), 86 Stat. 862 (33 U.S.C. 1321(j)(1)(A) and (m)); secs. 2, 5, and 7, E.O. 11735 (38 FR 21243); 49 CFR 1.45(b) and 1.46 (*l*) and (m).

SOURCE: CGD 73-185, 41 FR 12630, Mar. 25, 1976, unless otherwise noted.

Subpart A—General

§ 153.101 Purpose.

The purpose of this part is to prescribe regulations concerning notification to the Coast Guard of the discharge of oil or hazardous substance, the procedures for the removal of a discharge of oil, and the costs that may be imposed or reimbursed for the removal of a discharge of oil or hazardous substances.

§ 153.103 Definitions.

As used in this part:

(a) "Act" means the Federal Water Pollution Control Act (86 Stat. 816, 33 USC 1251).

(b) "Oil" means oil of any kind or in any form, including but not limited to petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.

(c) "Hazardous substance" means any substance designated by the Administrator of the Environmental Protection Agency pursuant to section 311(b)(2) of the Act.

(d) "Discharge" includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping.

(e) "Vessel" means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water other than a public vessel.

(f) "Public vessel" means a vessel owned or bare-boat chartered and operated by the United States, or by a State or political subdivision thereof, or by a foreign nation, except when such vessel is engaged in commerce.

(g) "United States" means the States, the District of Columbia, the Commonwealth of Puerto Rico, the Canal Zone, Guam, American Samoa, the Virgin Islands, and the Trust Territory of the Pacific Islands.

(h) "Person" includes an individual, firm, corporation, association, and a partnership.

(i) "Onshore facility" means any facility (including, but not limited to, motor vehicles and rolling stock) of any kind located in, on, or under, any land within the United States other than submerged land.

(j) "Offshore facility" means any facility of any kind located in, on, or under, any of the navigable waters of the United States other than a vessel or a public vessel.

(k) "Pollution Fund" and "Fund" means the revolving fund established in the Treasury under the authority in section 311(k) of the Act to carry out the provisions of section 311 (c), (d), (i), and (l) of the Act.

(l) "On-Scene Coordinator" or "OSC" is the predesignated Federal official provided for or furnished by the Environmental Protection Agency or the Coast Guard to coordinate and direct Federal removal efforts at the scene of an oil or hazardous substance discharge as prescribed in the National Oil and Hazardous Substance Pollution Contingency Plan (National Contingency Plan) prepared pursuant to section 311(c)(2) of the Act and published in 40 CFR Part 1510.

(m) "Agency Coordinator" or "AC" is the Federal Official designated by the Environmental Protection Agency or the Coast Guard to coordinate and direct the removal or elimination of threats of pollution hazards from discharges, or imminent discharges, of oil or hazardous substances, and the removal and destruction of vessels, under the authority of section 311(d) of the Act.

(n) "Harmful quantity" means those quantities of oil and any hazardous substance determined in accordance with the provisions of section 311(b)(4) of the Act.

NOTE: Regulations with respect to harmful quantities of oil are published in 40 CFR Part 110.

(o) "Coastal waters" are the waters of the United States navigable by deep draft vessels, the contiguous zone, and the other waters of the United States subject to tidal influence.

NOTE: Coastal waters are those U.S. waters and areas for which the Secretary of the Department in which the Coast Guard is operating has the responsibility to provide or furnish On-Scene Coordinators under the National Contingency Plan.

(p) "Inland waters" are those waters upstream from coastal waters.

NOTE: Inland waters are those U.S. waters and areas for which the Administrator of the Environmental Protection Agency has responsibility to provide or furnish On-Scene Coordinators under the National Contingency Plan. Specific dividing lines between coastal and inland waters are contained in the Regional Contingency Plans published pursuant to the National Contingency Plan.

(q) "Remove" or "Removal" refers to removal of oil or hazardous substances from the waters and shorelines or the taking of such other actions as may be necessary to minimize or mitigate damage to the public health or welfare, including, but not limited to, fish, shellfish, wildlife, and public and private property, shorelines, and beaches.

(r) "Chemical agents" means those elements, compounds, or mixtures that disperse, dissolve, emulsify, neutralize, precipitate, reduce, solubilize, oxidize, concentrate, conceal, entrap, fix, gel, make the pollutant mass more rigid or viscous, or otherwise facilitate the mitigation of deleterious effects or removal of the pollutant from the water.

(s) "Mechanical removal" means the use of pumps, skimmers, booms, earthmoving equipment, and other mechanical devices to contain the discharge of oil and to recover the discharge from the water or adjoining shorelines.

(t) "Sorbent" means materials essentially inert and insoluble used to remove oil from water through a variety of sorption mechanisms. Examples include straw, expanded perlite, polyurethane foam, reclaimed paper fibres, and peat moss.

(u) "Chief, Office of Marine Environment and Systems" means the Coast Guard Officer designated by the Commandant to assist and advise him on matters relating to marine environmental protection, port safety and security, aids to navigation, and bridges over navigable waters.

(v) "Contiguous zone" means the entire zone established by the United States under Article 24 of the Convention on the Territorial Sea and the Contiguous Zone, as published in the June 1, 1972 issue of the FEDERAL REGISTER (37 FR 11906).

(w) "Navigable waters" means the waters of the United States including the territorial seas.

153.105 Delegations.

(a) Each district commander, within his assigned district, is delegated authority to—

(1) Assess a civil penalty in accordance with the procedures in Subpart 1.07 of this chapter of not more than $5,000 for each offense against an owner or operator of any vessel, onshore facility, or offshore facility from which oil or a hazardous substance has been discharged into or upon the navigable waters of the United States, adjoining shorelines, or the waters of the contiguous zone in violation of section 311(b)(3) of the Act;

(2) Make the request, allowed in section 311(b)(6) of the Act, of the District Director of Customs to withhold clearance required by 19 CFR 4.66(a) of any vessel the owner or operator of which is subject to the penalty prescribed in section 311(b)(6) of the Act;

(3) Make the determination, allowed in section 311(b)(6) of the Act, whether or not clearance required by 19 CFR 4.66(a) may be granted of any vessel the owner or operator of which is subject to the penalty prescribed in section 311(b)(6) of the Act upon the filing by him of a bond or other surety satisfactory to the district commander;

(4) Assess a civil penalty in accordance with the procedures in Subpart 1.07 of this chapter of not more than $5,000 for each violation against an owner or operator of a vessel, an onshore facility, or an offshore facility, and any other person subject to regulations promulgated by the Coast Guard under section 311(j)(1) of the Act who fails or refuses to comply with those regulations, as prescribed in section 311(j)(2) of the Act;

(5) Determine an imminent and substantial threat to the public health or welfare of the United States because of an actual or threatened discharge of oil or hazardous substance into or upon the navigable waters of the United States from a transportation-related onshore or offshore facility, except aircraft, motor vehicles, rolling or pipeline system, and to secure the relief necessary to abate that actual or threatened discharge through the United States Attorney of the district in which the threat occurs, as prescribed in section 311(e) of the Act;

(6) Authorize for each discharge of oil or hazardous substance a total expenditure of $1,000,000 or less from the Pollution Fund for costs allowed in § 153.407;

(7) Deny entry to any port or place in the United States or the navigable waters of the United States, to, and detain at the port or place in the United States from which it is about to depart for any other port or place in the United States, any vessel subject to section 311(p) of the Act which upon request does not provide evidence of financial responsibility, as prescribed in section 311(p)(6) of the Act; and

(8) Except for public vessels, board and inspect any vessel upon the navigable waters of the United States or the waters of the contiguous zone, with or without a warrant arrest any person who in his presence or view violates a provision of section 311 of the Act or any regulation issued thereunder, and execute any warrant or other process issued by an officer or court of competent jurisdiction, as prescribed in section 311(m) of the Act.

(b) The Chief, Office of Marine Environment and Systems, is delegated authority to—

(1) Carry out, in coastal waters, the functions contained in section 311(d) of the Act which are, whenever a marine disaster has created a substantial threat of a pollution hazard from a vessel, to coordinate and direct all public and private efforts directed at the removal or elimination of that threat, and to summarily remove and if necessary destroy that vessel;

(2) Authorize for each discharge of oil or hazardous substance an expenditure in excess of $1,000,000 from the Pollution Fund for costs allowed in § 153.407; and

(3) Determine an imminent and substantial threat to the public health or welfare of the United States because of an actual or threatened discharge of oil or hazardous substance into or upon the navigable waters of the United States from aircraft, motor vehicles, rolling stock, or pipeline system, and through the Chief Counsel secure the relief necessary to abate that actual or threatened discharge through the United

States Attorney of the district in which the threat occurs, as prescribed in section 311(e) of the Act.

(c) Each Coast Guard official predesignated as On-Scene Coordinator by the applicable Regional Contingency Plan is delegated authority, pursuant to section 311(c)(1) of the Act, to remove or arrange for the removal of any oil or hazardous substance discharged into or upon the navigable waters of the United States, adjoining shorelines, or into or upon the waters of the contiguous zone, unless he determines that the removal is being done properly by the owner of the vessel or facility from which the discharge occurs.

§ 153.107 Redelegation.

Except for the authority granted in § 153.105(a)(5), (b)(3), and (c), each Coast Guard officer to whom authority is granted in § 153.105 may redelegate and authorize successive redelegations of that authority within the command under his jurisdiction, or to members of his staff.

Subpart B—Notice of the Discharge of Oil or a Hazardous Substance

§ 153.201 Purpose.

The purpose of this subpart is to prescribe the manner in which the notice required in section 311(b)(5) of the Act is to be given and to list the government officials to receive that notice.

NOTE: The notice required in this subpart is in addition to the notice required in 46 CFR 2.20–65 which requires notice to the Coast Guard of certain hazardous materials incidents.

§ 153.203 Procedure for the notice of discharge.

(a) Before January 1, 1977, any person in charge of a vessel or an onshore or offshore facility shall, as soon as he has knowledge of any discharge of oil or a hazardous substance from that vessel or facility in violation of section 311(b)(3) of the Act, immediately notify by telephone, radio telecommunication, or a similar means of rapid communication, one of the following persons:

(1) Duty Officer, National Response Center, U.S. Coast Guard, 400 Seventh Street, SW, Washington, D.C. 20590, toll free telephone number 800–424–8802.

(2) The government official predesignated in the applicable Regional Contingency Plan as the On-Scene Coordinator for the geographic area in which the discharge occurs.

NOTE: Regional Contingency Plans are available at Coast Guard District Offices and Environmental Protection Agency (EPA) Regional Offices, as indicated in Table 2. Coast Guard District Office and EPA Regional Office addresses are listed in Table 1.

(3) Commanding Officer or Office-in Charge of any Coast Guard unit in the vicinity of the discharge, or in the case of a discharge into the Panama Canal Zone, the Marine Traffic Control in Cristobal or Balboa.

(4) Commander of the Coast Guard district in which the discharge occurs.

NOTE: Coast Guard Districts and corresponding states may be found in Part 3 of this Chapter.

(b) After December 31, 1976, any person in charge of a vessel or an onshore or offshore facility shall, as soon as he has knowledge of any discharge of oil or a hazardous substance from that vessel or facility in violation of section 311(b)(3) of the Act, immediately notify by telephone, radio telecommunication, or a similar means of rapid communication the official designated in paragraph (a)(1) of this section, except as prescribed in paragraph (c) and (d) of this section.

(c) If after December 31, 1976, to give notice as prescribed in paragraph (b) of this section is impractical, notice may be given to the officials listed in paragraphs (a)(2) through (a)(4) of this section in order of priority.

(d) After December 31, 1976 any person in charge of a vessel or an onshore or offshore facility shall, as soon as he has knowledge of any discharge of oil or a hazardous substance occurring in Alaska or Hawaii from that vessel or facility in violation of section 311(b)(3) of the Act, immediately notify by telephone, radio telecommunications, or a similar means of rapid communications any of the officials listed in paragraphs (a)(2) through (a)(4) of this section.

§ 153.205 Fines.

Section 311(b)(5) of the Act prescribes that any person who fails to notify the appropriate agency of the United States Government immediately of a discharge is, upon conviction, subject to a fine of not more than $10,000 or to imprisonment of not more than one year, or both.

TABLE 1.—*Addresses and telephone numbers of Coast Guard district offices and EPA regional offices*

	Address	Telephone
EPA REGIONAL OFFICES		
Region:		
I	Room 2303, John F. Kennedy, Federal Bldg., Boston, Mass. 02203.	617-223-7265
II	Room 908, 26 Federal Plaza, New York, N.Y. 10007.	201-548-8730
III	Curtis Bldg., 6th and Walnut Sts., Philadelphia, Pa. 19106.	215-597-9898
IV	1421 Peachtree St. NE., Atlanta, Ga. 30309.	404-526-5062
V	230 S. Dearborn Ave., Chicago, Ill. 60604.	312-896-7591
VI	Suite 1600, 1600 Patterson St., Dallas, Tex. 75201.	214-749-3840
VII	1735 Baltimore Ave., Kansas City, Mo. 64108.	816-374-3778
VIII	Suite 900, 1860 Lincoln St., Denver, Colo. 80203.	303-837-3880
IX	100 California St., San Francisco, Calif. 94111.	415-556-6254
X	1200 6th Ave., Seattle, Wash. 98101.	206-442-1200
COAST GUARD DISTRICT OFFICES		
District:		
1st	150 Causeway St., Boston, Mass. 02114.	617-223-3644
2d	Federal Bldg., 1520 Market St., St. Louis, Mo. 63101.	314-622-4614
3d	Governors Island, New York, N.Y. 10004.	212-264-4800
5th	Federal Bldg., 431 Crawford St., Portsmouth, Va. 23705.	703-393-9611
7th	Room 1018, Federal Bldg., 51 Southwest 1st Ave., Miami, Fla. 33130.	305-350-5611
8th	Customhouse, New Orleans, La. 70130.	504-527-6225
9th	1240 East 9th St., Cleveland, Ohio 44199.	216-522-3983
11th	Heartwell Bldg., 19 Pine Ave., Long Beach, Calif. 90802.	213-590-2311
12th	630 Sansome St., San Francisco, Calif. 94126.	415-556-5500
13th	618 2nd Ave., Seattle, Wash. 98104.	206-524-2902
14th	677 Ala Moana Blvd., Honolulu, Hawaii 96813.	808-546-7109
17th	P.O. Box 3-5000, Juneau, Alaska 99801.	907-586-7340

TABLE 2—STANDARD ADMINISTRATIVE REGIONS OF STATES AND CORRESPONDING COAST GUARD DISTRICTS AND EPA REGIONS

States and EPA region:	*Coast Guard district—*
Region I:	
Maine	[1] 1
New Hampshire	1
Vermont	1
Massachusetts	1
Connecticut	3
Rhode Island	1
Region II:	
New York:	
Coastal area	[1] 3
Great Lakes area	9
New Jersey	3
Puerto Rico	7
Virgin Islands	7
Pennsylvania:	
East coast	3
Lakeside	9
Maryland	[1] 5
Delaware	3
West Virginia	2
Virginia	5
District of Columbia	5
Region IV:	
Kentucky	2
Tennessee	2
North Carolina	5
South Carolina	[1] 7
Georgia	7
Florida	7
Atlantic and Gulf coasts	7
Panhandle	8
Alabama	8
Mississippi	8
Canal Zone	7
Region V:	
Minnesota	[1] 9
Wisconsin	9
Michigan	9
Illinois	9
Indiana	9
Ohio	9
Region VI:	
New Mexico	8
Texas	[1] 8
Oklahoma	2
Arkansas	2
Louisiana	8
Region VII:	
Nebraska	2
Iowa	2
Kansas	2
Missouri	2
Region VIII:	
Montana	13
Wyoming	2
Utah	12
Colorado	2
North Dakota	2
South Dakota	2
Region IX:	
California:	
Northern	[1] 12
Southern	11
Nevada	12
Arizona	11
Hawaii	14
Guam	14
American Samoa	14
Trust Territories of the Pacific	14
Region X:	
Washington	[1] 13
Oregon	13
Idaho	13
Alaska	17

[1] Coastal plans for standard regions are available for public inspection.

Subpart C—Removal of Discharged Oil

§ 153.301 Purpose.

The purpose of this subpart is to prescribe methods and procedures to be used to remove discharges of oil from coastal waters.

§ 153.303 Applicability.

The provisions of this subpart apply to any owner or operator of a vessel or onshore or offshore facility from which a discharge of oil into coastal waters occurs who acts to remove or arranges for the removal of such discharges.

§ 153.305 Methods and Procedures for the Removal of Discharged Oil.

Each person who removes or arranges for the removal of a discharge of oil from coastal waters shall—

(a) Use to the maximum extent possible mechanical methods and sorbents that—

(1) Most effectively expedite removal of the discharged oil; and

(2) Minimize secondary pollution from the removal operations;

NOTE: The Federal OSC is authorized by the provisions of the National Contingency Plan to require or deny the use of specific mechanical methods and sorbents. Sorbent selection considerations of the OSC include hydrographic and meteorological conditions, characteristics of the sorbent, and availability of a mechanical method for containment and recovery.

(b) Control the source of discharge, prevent further discharges, and halt or slow the spread of the discharge by mechanical methods or sorbents or both to the maximum extent possible;

(c) Recover the discharged oil from the water or adjoining shorelines by mechanical or manual methods or both to the maximum extent possible;

(d) Use chemical agents only in accordance with the provisions of Annex X of the National Contingency Plan and with the prior approval of the Federal OSC; and

(e) Dispose of recovered oil and oil contaminated materials in accordance with applicable State and local government procedures.

§ 153.307 Penalties.

Section 311(j)(2) of the Act prescribes that any person who fails or refuses to comply with the provisions of this subpart is liable to a civil penalty of not more than $5,000.

Subpart D—Administration of the Pollution Fund

§ 153.401 Purpose.

This subpart prescribes policies, procedures, and reporting requirements for the payment from and deposit into the Fund established pursuant to section 311(k) of the Act.

§ 153.403 Applicability.

The provisions of this subpart apply to—

(a) Each Federal and State agency that desires reimbursement from the Fund for costs incurred during a removal activity; and

(b) The owner or operator of the vessel or onshore or offshore facility from which a discharge occurs that requires Federal removal activity.

§ 153.405 Liability to the pollution fund.

The owner or operator of the vessel or onshore or offshore facility from which a discharge occurs that requires Federal removal activity is liable to the pollution fund for the actual costs of Federal and State agencies, including the employment and use of personnel and equipment, not to exceed the limits established by sections 311(f) and (g) of the Act.

§ 153.407 Payments or reimbursement from the pollution fund.

(a) The following costs incurred during performance of a Phase III or IV activity, defined by the National Contingency Plan, as authorized by the appropriate OSC under the authority of section 311(c) of the Act and of the provisions of the National Contingency Plan, or during the removal or elimination of threats of pollution hazards from discharges, or imminent discharges, of oil or hazardous substances, and the removal and destruction of vessels, as authorized by the appropriate AC under the authority of section 311(d) of the Act are reimbursable to Federal and State agencies:

(1) Costs found to be reasonable by the Coast Guard incurred by government industrial type facilities, including charges for overhead in accordance with the agency's industrial accounting system.

(2) Actual costs for which an agency is required or authorized by any law to obtain full reimbursement.

(3) Costs found to be reasonable by the Coast Guard incurred as a result of removal activity that are not ordinarily

funded by an agency's regular appropriations and that are not incurred during normal operations. These costs include, but are not limited to, the following:

(i) Travel (transportation and per diem) specifically requested of the agency by the On-Scene Coordinator.

(ii) Overtime for civilian personnel specifically requested of the agency by the On-Scene Coordinator.

(iii) Incremental operating costs for vessels, aircraft, vehicles, and equipment incurred in connection with the removal activity.

(iv) Supplies, materials, and equipment procured for the specific removal activity and fully expended during the removal activity.

(v) Lease or rental of equipment for the specific removal activity.

(vi) Contract costs for the specific removal activity.

(4) Claims payable under Part 25, Subpart J of this title.

(b) The District Commander may authorize the direct payment of the costs found to be reasonable under paragraph (a)(3) of this section.

(c) The Pollution Fund is not available to pay any foreign, Federal, State or local government or agency for the payment or reimbursement of its costs incurred in the removal of oil or hazardous substances discharged from a vessel or facility that it owns or operates.

NOTE: Federal procurement procedures governing contracts to purchase property and services apply to costs incurred as a result of removal activity. Where the public exigency will not permit the delay incident to advertising, purchases and contracts are negotiated pursuant to 10 U.S.C. 2304(a)(2) or 41 U.S.C. 252(c)(2), as applicable.

§ 153.411 Procedures for payment of judgments.

An owner or operator of a vessel or an onshore or offshore facility who obtains a judgment against the United States under section 311(i) of the Act may have the judgment satisfied by requesting payment of the judgment in writing from the Commandant (G-L), 400 7th Street SW., Washington, D.C. 20590. This request must be accompanied by a copy of the judgment and must designate to whom payment should be made.

§ 153.413 Deposit of money into the fund.

Any person liable for the payment of the following shall remit payment by check or postal money order, payable to the U.S. Coast Guard, to the cognizant District Commander, or to the Commandant for deposit into the Pollution Fund as prescribed in section 311(k) of the Act:

(a) A fine or penalty imposed, assessed, or compromised under section 311 of the Act, including the proceeds of a bond or other surety obtained pursuant to section 311(b)(6).

(b) A claim asserted by the cognizant District Commander for costs recoverable under sections 311(f) and (g) of the Act.

(c) A judgment obtained by the United States for costs recoverable under sections 311(f) and (g) of the Act.

§ 153.415 OSC and AC reports.

As soon as practicable after completion of an action authorized under section 311(c) or (d) of the Act, the OSC or AC submits a report to the cognizant District Commander that must include—

(a) Names of agencies and contractors authorized to participate in the action;

(b) A general description of the function performed by each participating agency and contractor;

(c) An estimate of the cost of each function performed by each participating agency and contractor; and

(d) A copy of contracts, memoranda, or other documents pertaining to the functions performed by the participating agencies and contractors.

§ 153.417 Reimbursement for actions under section 311(c) of the Act.

(a) Each Federal or State agency requesting reimbursement for an action authorized under section 311(c) of the Act must, within 60 days after completion of the action, submit to the cognizant District Commander, through the OSC for review and certification required in paragraph (b) of this section, lists, accompanied by supporting accounting data, itemizing actual costs incurred

(b) Requests for reimbursement submitted by Federal and State agencies are reviewed by the OSC to ensure that the costs for which reimbursement is being sought were authorized as Phase III and IV removal actions and must have one of the following certifications by the OSC, as appropriate:

(1) I certify that the actions for which reimbursement is being requested in the attached statements were authorized by me as Phase III and IV removal actions, and

reasonable costs related thereto are proper for payment from the Pollution Fund.

(Signature)
OSC

(Incident title)

(Pollution incident project number)

(2) I certify that, except as noted below, the actions for which reimbursement is being requested in the attached statements were authorized by me as Phase III and IV removal actions, and reasonable costs related thereto are proper for payment from the Pollution Fund. The following actions were not authorized by me and are not subject to reimbursement from the Pollution Fund:

(Signature)
OSC

(Incident title)

(Pollution incident project number)

§ 153.419 Reimbursement for actions under 311(d) of the Act.

(a) Each Federal agency requesting reimbursement for an action authorized under section 311(d) of the Act must, within 60 days after completion of the action, submit to the cognizant District Commander, through the AC for review and certification required in paragraph (b) of this section, lists, accompanied by supporting accounting data, itemizing actual costs incurred.

(b) Requests for reimbursement submitted by Federal agencies are reviewed by the AC to ensure that the costs for which reimbursement is being sought were authorized under section 311(d) of the Act and must have one of the following certifications by the AC, as appropriate:

(1) I certify that the actions for which reimbursement is being requested in the attached statements were authorized by me as removal actions under section 311(d) of the Act and reasonable costs related thereto are proper for payment from the Pollution Fund.

(Signature)
AC

(Incident title)

(Pollution incident project number)

(2) I certify that, except as noted below, the actions for which reimbursement is being requested in the attached statements were authorized by me as removal actions under section 311(d) of the Act, and reasonable costs related thereto are proper for payment from the Pollution Fund. The following actions were not authorized by me and are not subject to reimbursement from the Pollution Fund:

(Signature)
AC

(Incident title)

(Pollution incident project number)

PART 154—LARGE OIL TRANSFER FACILITIES

Subpart A—General

Sec.
154.100 Applicability.
154.105 Definitions.
154.110 Letter of intent.
154.120 Facility inspection.
154.140 Suspension of oil transfer operations.

Subpart B—Operations Manual

154.300 Operations manual: General.
154.310 Operations manual: Contents.
154.320 Operations manual: Amendment.
154.330 Operations manual: Waivers.

Subpart C—Equipment Requirement

154.500 Hose assemblies.
154.510 Loading arms.
154.520 Closure devices
154.530 Small discharge containment.
154.540 Discharge removal.
154.545 Discharge containment equipment.
154.550 Emergency shutdown.
154.560 Communications.
154.570 Lighting.

Subpart D—Facility Operations

154.700 General.
154.710 Persons in charge: Designation and qualification.
154.730 Persons in charge: Evidence of designation.
154.740 Records.
154.750 Compliance with operations manual.
154.760 Operations manual: Changes.
154.770 Operations manual: Availability
154.780 Compliance with suspension order.

AUTHORITY: Section 311(j)(1)(C) of the Federal Water Pollution Control Act (86 Stat. 816, 868); 33 U.S.C. 1161(j)(1)(C); E.O. 11548, 3 CFR, 1966–1970 COMP., p. 949; 49 CFR 1.46 (m).

SOURCE: CGD 71–160R, 37 FR 28253, Dec. 21, 1972, unless otherwise noted

Subpart A—General

§ 154.100 Applicability.

This part applies to each onshore and offshore facility, when it transfers oil in bulk to or from any vessel that has a

capacity of 250 or more barrels of that oil except when it transfers—

(a) Lubricating oil for use on board a vessel; or

(b) Nonpetroleum based oil to or from a vessel other than a tank vessel.

§ 154.105 Definitions.

As used in this part:

(a) "Barrel" means that unit of liquid measure equivalent to 42 U.S. gallons at 60° Fahrenheit.

(b) "Commandant" means the Commandant of the Coast Guard or his authorized representative.

(c) "Captain of the Port" means a U.S. Coast Guard officer commanding a Captain of the Port Area described in Part 3 of this chapter, or his authorized representative or, where there is no Captain of the Port Area, a District Commander of a Coast Guard District described in Part 3 of this chapter, or his authorized representative.

(d) "Discharge" includes but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping.

(e) "District Commander" as used in this part, means the officer of the Coast Guard designated by the Commandant to command a Coast Guard District, as described in Part 3 of this chapter or his authorized representative.

(f) "Facility" means either an onshore facility or an offshore facility.

(g) "Incompatible products" means products that, when mixed, create a hazard, such as spontaneous combustion, or energy release or form a product that is hazardous to health.

(h) "Officer in Charge, Marine Inspection" means a U.S. Coast Guard officer commanding a Marine Inspection Zone described in Part 3 of this chapter, or his authorized representative.

(i) "Offshore facility" means any facility of any kind located in, on, or under any of the navigable waters of the United States other than a vessel or a public vessel.

(j) "Oil" means oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. For the purposes of this part liquefied natural gas and liquefied petroleum gas (LNG and LPG) are excluded.

(k) "Onshore facility" means any facility (including, but not limited to motor vehicles and rolling stock) of any kind located in, on, or under any land within the United States other than submerged land.

(l) "Person" includes an individual, firm, corporation, association and a partnership.

(m) "Person in charge" means a person designated as a person in charge of oil transfer operations under § 154.710 or § 155.700 of this chapter.

(n) "Public vessel" means a vessel owned or bare-boat chartered and operated by the United States, or by a State or political subdivision thereof, or by a foreign nation, except when such a vessel is engaged in commerce.

(o) "Tank vessel" means any vessel especially constructed or converted to carry liquid bulk cargo in tanks.

(p) "Vessel" means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water, other than a public vessel.

§ 154.110 Letter of intent.

(a) The operator of any facility to which this part applies shall submit a letter of intent to operate a facility or to conduct mobile facility operations to the Captain of the Port not less than 60 days before the intended operations unless a shorter period is allowed by the Captain of the Port; and, for facilities in operation on January 30, 1973, that are intended to be in operation on July 1, 1974, shall submit a letter of intent to operate before July 1, 1973.

(b) The letter of intent required by paragraph (a) of this section may be in any form but must contain—

(1) The name, address, and telephone number of the operator;

(2) The name, address, and telephone number of the facility or, in the case of a mobile facility, the dispatching office; and

(3) Except for mobile facility operations, the geographical location of the facility with respect to the associated body of navigable waters. The operator of a mobile facility shall advise the Captain of the Port of the location of each transfer operation at least 4 hours prior to each operation.

(c) The facility operator of any facility for which a letter of intent has been submitted, shall immediately advise the Captain of the Port in writing of any changes of information in the letter and shall cancel, in writing, the letter for any facility at which oil transfer operations are no longer conducted.

§ 154.120 Facility inspections.

(a) The facility operator shall allow the Commandant, at any time, to make any inspection and shall perform, upon request, any test to determine compliance with the Federal Water Pollution Control Act and this part. All required testing of facility equipment must be conducted by the facility operator in a manner acceptable to the Commandant.

(b) The Captain of the Port records the date, scope, and results of each facility inspection in the facility's inspection record required by § 154.740(e) and lists the deficiencies in the inspection record when the facility is not in compliance with the regulations in this part.

§ 154.140 Suspension of oil transfer operations.

The Captain of the Port may issue an order to suspend oil transfer operations to the operator of a facility if he finds that there is a condition requiring immediate action to prevent the discharge or threat of discharge of oil.

(a) An order of suspension may be effective immediately.

(b) An order of suspension includes a statement of each condition requiring immediate action to prevent the discharge of oil.

(c) The facility operator may petition the District Commander in writing, or in any manner when the order is effective immediately, to reconsider the issuance of the order of suspension. The decision of the District Commander is the final administrative decision.

Subpart B—Operations Manuals

§ 154.300 Operations manual: General.

(a) The facility operator of each facility to which this part applies must prepare and submit with his letter of intent to operate an operations manual that describes—

(1) The means and procedures that the applicant uses to meet the operating rules and equipment requirements prescribed by this part; and

(2) The duties and responsibilities of operations personnel in conducting oil transfer operations under this part.

(b) In determining whether the manual meets the requirements of this part, the Captain of the Port considers the size, complexity and capacity of the facility.

§ 154.310 Operations manual: Contents.

Each operations manual required by § 154.300 must contain—

(a) The geographic location of the facility;

(b) A physical description of the facility including a plan of the facility showing mooring areas, transfer locations, control stations, and locations of safety equipment;

(c) The hours of operation of the facility;

(d) The sizes, types, and number of vessels that the facility can transfer oil to or from simultaneously;

(e) The grade and trade name of each product transferred at the facility that is incompatible with oil;

(f) The minimum number of personnel on duty during transfer operations and their duties;

(g) The names and telephone numbers of facility, Coast Guard, and other personnel who may be called by the employees of the facility in an emergency;

(h) The duties and responsibilities of watchmen required by § 155.810 of this chapter and 46 CFR 35.05–15 for unmanned vessels moored at the facility;

(i) A description of each communication system required by this part;

(j) The location and facilities of each personnel shelter, if any;

(k) A description and instructions for use of drip and discharge collection and vessel slop reception facilities if any;

(l) A description and the location of each emergency shutdown system;

(m) Quantity, type, location and instructions for use of the containment equipment required by § 154.545;

(n) The maximum relief valve setting (or maximum system pressure when relief valves are not provided) for each oil transfer system;

(o) Procedures for—

(1) Operating each loading arm including the limitations of each loading arm;

(2) Transferring oil;

(3) Completion of pumping;

(4) Emergencies;

(p) A contingency plan for reporting and containing oil discharges; and

(q) A brief summary of applicable Federal, State, and local oil pollution laws and regulations.

(r) A description of the training and qualification program for persons in charge.

(s) Any other item the Captain of the Port requires, under § 154.320 to cover a particular condition at the facility.

§ 154.320 Operations manual: Amendment.

(a) The Captain of the Port may require the facility operator to amend the operations manual if he finds that the operations manual does not meet the requirements of this part. See § 154.760 (a).

(b) When the Captain of the Port determines to require an amendment of an operations manual he notifies the facility operator in writing of a date not less than 14 days from the date of the notice, on or before which the facility operator may submit written information, views, and arguments on the amendment. After considering all relevant material presented, the Captain of the Port notifies the facility operator of any amendment required or adopted or he rescinds the notice. The amendment becomes effective not less than 30 days after the facility operator receives the notice unless the facility operator petitions the Commandment to reconsider the notice, in which case its effective date is stayed pending a decision by the Commandant. Petitions to the Commandant must be submitted in writing to the Captain of the Port.

(c) If the Captain of the Port finds that there is a condition requiring immediate action to prevent the discharge or risk of discharge of oil that makes the procedure in paragraph (a) of this section impracticable or contrary to the public interest, he may issue an amendment effective, without stay, on the date the facility operator receives notice of it. In such a case, the Captain of the Port includes a brief statement of the reasons for his finding in the notice, and the owner or operator may petition the District Commander, in any manner, to reconsider the amendment.

§ 154.330 Operations manual: Waivers.

The Captain of the Port may, by an appropriate amendment to the operations manual, waive, in whole or in part, compliance with any requirement in this part if—

(a) Application for the waiver is submitted to the Captain of the Port at least 30 days before operations under the waiver are proposed unless a shorter time is authorized by the Captain of the Port; and

(b) The Captain of the Port finds that an equivalent level of protection of the navigable waters from pollution by oil will be provided by the alternative procedures, methods, or equipment standards to be used by the applicant.

Subpart C—Equipment Requirements

§ 154.500 Hose assemblies.

(a) Each hose assembly, consisting of a hose that is larger than 3 inches inside diameter and couplings, that is manufactured after June 30, 1973, and used for transferring oil, must meet the requirements of this section.

(b) The pressure, which the manufacturer represents to be the minimum bursting pressure, for each hose assembly must be—

(1) 600 pounds per square inch or more; and

(2) At least four times the pressure of the relief valve setting (or four times the maximum pump pressure when no relief valve is installed) plus the static head pressure of the oil transfer system at the point where the hose is installed.

(c) The pressure that the manufacturer represents to be the recommended working pressure for each hose assembly must be—

(1) 150 pounds per square inch or more; and

(2) More than the pressure of the relief valve setting (or the maximum pump pressure when no valve is installed) plus the static head pressure of the oil transfer system at the point where the hose is installed.

(d) Each nonmetallic hose must be specified for oil service by its manufacturer.

(e) Each hose assembly must have—

(1) Full threaded connections;

(2) Flanges that meet standard B16.5, Steel Pipe Flanges and Flanges Fittings, or standard B16.31, Nonferrous Pipe Flanges, of the American National Standards Institute; or

(3) Quick-connect couplings that are acceptable to the Commandant.

(f) Except as provided in paragraph (g) of this section, each hose must be marked with—

(1) The products for which the hose may be used or the words "oil service;"

(2) Date of manufacture;

(3) Burst pressure;
(4) Manufacturer's recommended working pressure;
(5) Date of the last test required by § 156.170 of this chapter; and
(6) The pressure used for that test.
(g) The information required by paragraph (f) of this section need not be marked on a hose if it is recorded elsewhere at the facility and the hose is marked so as to identify it with the information in the record.

§ 154.510 Loading arms.

(a) Each mechanical loading arm used for transferring oil and placed into service after June 30, 1973, must meet the design, fabrication, material, inspection, and testing requirements in Standard B31.3, Petroleum Refinery Piping, of the American National Standards Institute.
(b) Each mechanical loading arm used for transferring oil must have a means of being drained or closed before disconnecting after transfer of oil.

§ 154.520 Closure devices.

The facility must have enough butterfly valves, wafer-type resilient seated valves, blank flanges, or other means acceptable to the Captain of the Port to blank off the end of each hose or loading arm that is disconnected after transfer of oil.

§ 154.530 Small discharge containment.

(a) Except as provided in paragraph (d) of this section, the facility must have fixed catchments, curbing, or other fixed means to contain oil discharged in at least—
(1) Each hose handling and loading arm area; and
(2) Each hose connection manifold area.
(b) "Hose handling and loading arm area" means that area on the facility which, with the loading arm or the hose attached to the facility discharge piping, is within the area traversed by the free end of the hose or loading arm when moved from its normal stowed or idle position into a position for connection to the vessel.
(c) The discharge containment means required by paragraph (a) of this section must hold at least—
(1) Three barrels if it serves one or more hoses of 6-inch inside diameter or smaller or loading arm connections of 6-inch nominal pipe size diameter or smaller;
(2) Four barrels if it serves one or more hoses larger than 6-inch inside diameter or loading arm connections larger than 6-inch nominal pipe size but less than 12 inches diameter; or
(3) Six barrels if it serves one or more hoses or a 12-inch inside diameter or larger or loading arm connections of 12-inch nominal pipe size diameter or larger.
(d) The facility may have portable means to meet the requirements of paragraph (a) of this section if the Captain of the Port finds that fixed means to contain discharges are not feasible for part or all of the facility.

§ 154.540 Discharge removal.

The facility must have a means to safely and quickly remove discharged oil from the containment means required by § 154.530 without mixing incompatible products or discharging it into the water.

§ 154.545 Discharge containment equipment.

(a) Each oil transfer facility must have ready access to oil containment material and equipment to contain oil discharged on the water considering—
(1) Oil handling rates;
(2) Oil capacity susceptible to being spilled;
(3) Frequency of facility operations;
(4) Tidal and current conditions;
(5) Facility age, capability, arrangement and past experience; and
(6) If the equipment is shared, the expected frequency of use and probability of availability.
(b) For the purpose of this section, "access" may be by direct ownership, joint ownership, cooperative venture, or contractual agreement.

§ 154.550 Emergency shutdown.

(a) The facility must have, in addition to the means of communication required by § 154.560, an emergency means to enable the person in charge of the transfer of oil on board the vessel at his usual operating station to stop the flow of oil to the vessel. This means must be an electrical, pneumatic, or mechanical linkage to the shore facility or a continuous dedicated communications system manned by a person ashore who can stop the flow of oil in an emergency.
(b) The point in the oil transfer system at which the emergency means stops the flow of oil must be located on the facility near the loading arm or transfer hose connection point so as to minimize

the loss of oil in the event of hose rupture or loading arm failure.

§ 154.560 Communications.

(a) Each facility must have a means that enables two-way voice communication between the person in charge of the transfer operation on board the vessel and the person in charge of the facility transfer operation.

(b) Each facility must have a means, which may be the communications system itself, that enables a person on board a vessel or on the facility to effectively indicate his desire to use the means of communication required by paragraph (a) of this section.

§ 154.570 Lighting.

(a) For operations between sunset and sunrise, the facility must have fixed lighting that illuminates—

(1) Each transfer connection point on the facility with an average minimum lighting intensity of 5-foot candles;

(2) Each oil transfer operations work area on the facility with an average minimum lighting intensity of 1-foot candle;

(3) Each transfer connection point in use on any barge moored at the facility, to or from which oil is being transferred, with an average minimum lighting intensity of 5-foot candles; and

(4) Each oil transfer operations work area on any barge moored at the facility, to or from which oil is being transferred, with an average minimum lighting intensity of 1 foot candle.

(b) The lighting intensity must be measured on a horizontal plane 3 feet above the barge deck or walking surface.

(c) For small or remote facilities, the Captain of the Port may authorize operations with an equivalent intensity of lighting provided by the vessel or by portable means.

Subpart D—Facility Operations

§ 154.700 General.

No person may operate a facility to which this part applies unless the equipment, personnel, and operating procedures of that facility meet the requirements of this part.

§ 154.710 Persons in charge; designation and qualification.

No person may serve, and the facility operator may not use the services of a person, as person in charge of facility oil transfer operations unless—

(a) The facility operator has designated that person as a person in charge and has advised the Captain of the Port in writing of his designation;

(b) He has had at least 48 hours of experience in oil transfer operations at a facility in operations to which this part applies;

(c) He has enough experience at the facility for which qualification is desired to enable the facility operator to determine that his experience is adequate and that he can operate the oil transfer equipment of the facility, except that, for new facilities, the Captain of the Port may authorize alternative experience requirements; and

(d) The facility operator has determined that he knows—

(i) The hazards of each product to be transferred;

(ii) The rules in this part and in Part 156 of this chapter;

(iii) The facility operating procedures as described in the operations manual;

(iv) Vessel oil transfer systems, in general;

(v) Vessel oil transfer control systems, in general;

(vi) Each facility oil transfer control system to be used;

(vii) Local discharge reporting procedures; and

(viii) The facility's contingency plan for discharge reporting and containment.

§ 154.730 Person in charge: Evidence of designation.

Each person in charge shall carry evidence of his designation as a person in charge when he is engaged in transfer operations unless such evidence is immediately available at the facility.

§ 154.740 Records.

Each facility operator shall keep at the facility and make available for inspection by the Captain of the Port—

(a) A copy of the letter of intent for the facility;

(b) The name of each person currently designated as a person in charge of oil transfer operations;

(c) The date and result of the most recent test or inspection of each item tested or inspected under § 156.70 of this chapter;

(d) The hose information required by § 154.500(f) unless that information is marked on the hose; and

(e) The record of each inspection of the facility by the Captain of the Port.

§ 154.750 Compliance with operations manual.

The facility operator shall use and require its personnel to use the procedures in the operations manual prescribed by § 154.300 for operations under this part.

§ 154.760 Operations manual: Changes.

(a) Each facility operator shall keep the operations manual current so that at all times it meets the requirements in §§ 154.300 and 154.310.

(b) The facility operator shall provide a copy of each change to the operations manual to the Captain of the Port before transferring oil in operations to which this part applies.

§ 154.770 Operations manual: Availability.

Each facility operator shall keep an operations manual at the facility and shall make it readily available to the operating personnel, vessel personnel and, upon reqlest, to the Captain of the Port.

§ 154.780 Compliance with suspension order.

No facility operator to whom an order of suspension has been issued under § 154.140 may conduct oil transfer operations until that order is withdrawn by the Captain of the Port or the District Commander.

PART 155—VESSEL DESIGN AND OPERATIONS

Subpart A—General

Sec.
155.100 Applicability.
155.105 Definitions.
155.110 Waivers.
155.130 Suspension of operations.

Subpart B—Vessel Design and Equipment

155.310 Cargo oil discharge containment.
155.320 Fuel oil discharge containment.
155.330 Oily waste and slop retention.
155.340 Bilge slops on vessels of 100 or more gross tons: Ocean or Coastwise service.
155.350 Bilge slops on vessels of 100 or more gross tons: Operations other than ocean or coastwise service.
155.360 Bilge slops on vessels of less than 100 gross tons.
155.370 Ballast discharge: Vessels of 100 or more gross tons: Ocean or coastwise service.
155.380 Ballast discharge: Vessels of 100 or more gross tons: Operations than ocean or coastwise service.
155.390 Ballast discharge: Vessels of less than 100 gross tons.
155.400 Exception for all vessels: Oily waste processing equipment.
155.410 Exception for tank vessels: Oily waste transfer equipment.
155.440 Placard.
155.470 Prohibited oil spaces.
155.480 Inspection of valves.

Subpart C—Oil Transfer Personnel, Procedures, Equipment, and Records

155.700 Designation of person in charge.
155.710 Qualifications of person in charge.
155.720 Oil transfer procedures.
155.730 Compliance with oil transfer procedures.
155.740 Posting of oil transfer procedures.
155.750 Contents of oil transfer procedures.
155.760 Amendment of oil transfer procedures.
155.770 Machinery oil drains: U.S. vessels.
155.780 Emergency shutdown.
155.790 Deck lighting.
155.800 Oil transfer hose.
155.810 Tank vessel security.
155.820 Records.

Appendix A—Specifications for shore connection.

AUTHORITY: Section 311(j)(1)(C) and (D) of the Federal Water Pollution Control Act (86 Stat. 816, 868); 33 U.S.C. 1161(j)(1)(C) and (D); E.O. 11548, 3 CFR, 1966–1970 COMP. p. 949; 49 CFR 1.46(m).

SOURCE: CGD 71–160R, 37 FR 28256, Dec. 21, 1972, unless otherwise noted.

Subpart A—General

§ 155.100 Applicability.

This part prescribes rules that apply to the operation of vessels on the navigable waters and contiguous zone of the United States for the purpose of preventing the discharge of oil into or upon the navigable waters or contiguous zone of the United States after June 30, 1974. U.S. vessels must meet the vessel design and equipment requirements in this part to be eligible for the issuance of a Certificate of Inspection under 46 CFR Ch. I.

§ 155.105 Definitions.

(a) "Barrel" means that unit of liquid measure equivalent to 42 U.S. gallons at 60° Fahrenheit.

(b) "Commandant" means the Commandant of the U.S. Coast Guard or his authorized representative.

(c) "Captain of the Port" means a U.S. Coast Guard officer commanding a Captain of the Port area described in Part 3 of this chapter or his authorized representative or, where there is no Cap-

tain of the Port area, a District Commander of a Coast Guard District described in Part 3 of this chapter or his authorized representative.

(d) "Contiguous zone" means the entire zone established by the United States under Article 24 of the Convention on the Territorial Sea and the Contiguous Zone.

(e) "Discharge" includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping.

(f) "District Commander" as used in this part means the officer of the Coast Guard designated by the Commandant to command a Coast Guard district as described in Part 3, of this chapter or his authorized representative.

(g) "Facility" means either an onshore facility or an offshore facility.

(h) "Incompatible products" means products that, when mixed, create a hazard such as spontaneous combustion or energy release or form a product that is hazardous to health.

(i) "Officer in Charge, Marine Inspection" means a U.S. Coast Guard officer commanding a Marine inspection zone described in Part 3 of this chapter or his authorized representative.

(j) "Offshore facility" means any facility of any kind located in, on, or under any of the navigable waters of the United States other than a vessel or a public vessel.

(k) "Oil" means oil of any kind or in any form, including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. For the purpose of this part liquefied natural gas and liquefied petroleum gas (LNG and LPG) are excluded.

(l) "Onshore facility" means any facility (including, but not limited to motor vehicles and rolling stock) of any kind located in, on, or under any land within the United States other than submerged land.

(m) "Person" includes an individual, firm, corporation, association, and, a partnership.

(n) "Person in Charge" means an individual designated as a person in charge of oil transfer operations under § 154.710 or § 155.700 of this chapter.

(o) "Public vessel" means a vessel owned or bare-boat chartered and operated by the United States, or by a State or political subdivision thereof, or by a foreign nation, except when such a vessel is engaged in commerce.

(p) "Tank vessel" means any vessel especially constructed or converted to carry liquid bulk cargo in tanks.

(q) "Tank barge" means any tank vessel not equipped with a means of self-propulsion.

(r) "U.S. vessel" means a vessel that is owned, documented, or registered in the United States and that is not a public vessel.

(s) "Vessel" means every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water other than a public vessel.

§ 155.110 Waivers.

The Commandant may waive, in whole or in part, compliance with any requirement in this part if—

(a) Application for the waiver is submitted to the Captain of the Port or Officer in Charge, Marine Inspection, 30 days before operations under the waiver are proposed unless a shorter time is authorized by the Captain of the Port or Officer in Charge, Marine Inspection; and

(b) The Commandant finds that an equivalent level of protection of the navigable waters or contiguous zone from pollution by oil will be provided by the alternative procedures, methods, or equipment standards to be used by the vessel operator.

§ 155.130 Suspension of operations.

The Captain of the Port or Officer in Charge, Marine Inspection may issue an order to suspend oil transfer operations to the operator of the vessel when he finds there is a condition requiring immediate action to prevent the discharge or threat of discharge of oil.

(a) An order of suspension may be effective immediately.

(b) An order of suspension includes a statement of each condition requiring immediate action to prevent the discharge of oil.

(c) The vessel operator may petition the District Commander in writing, or in any manner when the order is effective immediately, to reconsider the issuance of the order of suspension. The decision of the District Commander is the final administrative decision.

Subpart B—Vessel Design and Equipment

§ 155.310 Cargo oil discharge containment.

(a) No person may operate a tank vessel carrying oil that has a capacity for 250 or more barrels of cargo oil unless it has—

(1) Fixed containers or enclosed deck areas that meet the requirements of this section under or around each oil loading manifold and each oil transfer connection area; and

(2) A means of draining or removing discharged oil from each container or enclosed deck area without mixing incompatible products or discharging it into the water.

(b) Each drain and scupper in an enclosed deck area required by this section must have a mechanical means of closing.

(c) Each fixed container or enclosed deck area must hold, in all conditions of vessel list or trim to be encountered during the loading operation, at least—

(1) Three barrels if it serves one or more hoses of 6-inch inside diameter or smaller or loading arms of 6-inch nominal pipe size diameter or smaller;

(2) Four barrels if it serves one or more hoses larger than 6-inch inside diameter or loading arms larger than 6-inch nominal pipe size diameter, but less than 12-inch diameter; or

(3) Six barrels if it serves one or more hoses of 12-inch inside diameter or larger or loading arms of 12-inch nominal pipe size diameter or larger.

§ 155.320 Fuel oil discharge containment.

No person may transfer oil for fuel to a vessel of 100 or more gross tons unless—

(a) For vessels constructed after June 30, 1974, it has a fixed container or enclosed deck area of at least two barrels capacity under or around each fuel tank vent, overflow, and fill pipe;

(b) For vessels constructed before July 1, 1974, it—

(1) Complies with paragraph (a) of this section; or

(2) Each fuel tank vent, overflow, and fill pipe is located where a portable container that is at least 18 inches deep and has at least a 5 U.S. gallon capacity can be placed under it; or

(3) It is a flush deck fill fitting and is being serviced by an automatic back pressure shutoff nozzle.

§ 155.330 Oily waste and slop retention.

(a) No person may operate a vessel of 100 or more gross tons unless it has capacity to retain on board all oily waste and oily bilge slops that may accumulate while operating in the navigable waters or contiguous zone.

(b) No person may use a tank for oily bilge slops or oily waste on U.S. vessels certificated under 46 CFR Ch. I unless the tank meets the requirements of 46 CFR 56.50–50(h) for isolation between oil and bilge systems.

§ 155.340 Bilge slops on vessels of 100 or more gross tons: Ocean or coastwise service.

No person may operate a U.S. vessel of 100 or more gross tons certificated under 46 CFR Ch. I for Ocean or coastwise service, or a foreign vessel of 100 or more gross tons, that is fitted with either main or auxiliary machinery spaces, unless—

(a) The vessel has at least one pump installed to discharge oily bilge slops through a fixed piping system;

(b) The piping system required by this section has at least one outlet—

(1) For vessels of 1,600 or more gross tons, on each side of the weather deck; or

(2) For vessels of less than 1,600 gross tons, accessible from the weather deck;

(c) Each outlet required by this section has a shore connection that meets the specifications in Appendix A of this part or the vessel has at least one portable adapter that meets the specifications in Appendix A of this part and fits the required outlets;

(d) The vessel has a means on the weather deck near the discharge outlet to stop each pump that is used to discharge oily waste; and

(e) The vessel has a stop valve installed for each outlet required by this section.

§ 155.350 Bilge slops on vessels of 100 or more gross tons: Operations other than ocean or coastwise service.

No person may operate a vessel of 100 or more gross tons that is fitted with either main or auxiliary machinery spaces and is not subject to § 155.340, unless—

(a) The vessel has at least one pump installed to discharge oily bilge slops through a fixed piping system;

(b) The piping system required by this section has at least one outlet that is accessible from the weather deck;

(c) Each outlet required by this section has a shore connection that meets the specifications in Appendix A of this part or that meets standard B16.5, Steel Pipe Franges and Flanged Fittings, or B16.31, Nonferrous Pipe Flanges, of the American National Standards Institute for a 4-inch standard flange; and

(d) The vessel has a stop valve installed for each outlet required by this section.

§ 155.360 Bilge slops on vessels less than 100 gross tons.

No person may operate a vessel of less than 100 gross tons unless it has a fixed or portable means to discharge oily bilge slops to a reception facility.

§ 155.370 Ballast discharge: Vessels of 100 or more gross tons: Ocean or coastwise service.

No person may operate a U.S. vessel of 100 or more gross tons that is certificated under 46 CFR Ch. I for ocean or coastwise service, or a foreign vessel of 100 or more gross tons, that ballasts fuel tanks or has combined fuel and ballast tanks unless—

(a) The vessel has at least one pump installed to discharge ballast through a fixed piping system;

(b) The piping system required by this section has at least one outlet—

(1) For vessels of 1,600 or more gross tons, on each side of the weather deck; or

(2) For vessels of less than 1,600 gross tons, accessible from the weather deck;

(c) Each outlet required by this section has a shore connection that meets the specifications in Appendix A of this part, or the vessel has at least one portable adapter that meets the specifications in Appendix A of this part and fits the required outlets;

(d) The vessel has a means near the discharge piping on the weather deck to stop each pump that is used to discharge oily ballast; and

(e) The vessel has a stop valve installed for each outlet required by this section.

§ 155.380 Ballast discharge: Vessels of 100 or more gross tons: Operations other than ocean or coastwise service.

No person may operate a vessel of 100 or more gross tons that is not subject to § 155.370 and ballast fuel tanks or has combined fuel and ballast tanks unless—

(a) The vessel has at least one pump installed to discharge all oily ballast through a fixed piping system;

(b) The piping system required by this section has at least one outlet that is accessible from the weather deck;

(c) Each outlet required by this section has a shore connection that meets the specifications in Appendix A of this part or the vessel has at least one portable adapter that meets the specifications in Appendix A of this part and fits the required outlets; and

(d) The vessel has a stop valve installed for each outlet required by this section.

§ 155.390 Ballast discharge: Vessels of less than 100 gross tons.

No person may operate a vessel of less than 100 gross tons that ballasts fuel oil tanks unless it has a fixed or portable means to discharge oily ballast to a reception facility.

§ 155.400 Exception for all vessels: Oily waste processing equipment.

Section 155.340 through 155.390 do not apply to a vessel that has a means acceptable to the Commandant to process oily bilge slops or oily ballast.

§ 155.410 Exception for tank vessels: Oily waste transfer equipment.

Sections 155.340 through 155.390 do not apply to tank vessels that have a means of transferring oily bilge slops or oily ballast to a cargo tank used for slops. On U.S. vessels, this means must meet the bilge and oil system isolation requirements in 46 CFR 56.50–50(h).

§ 155.440 Placard.

No person may operate a vessel, except a foreign vessel or a vessel less than 26 feet in length, unless it has a placard at least 5 by 8 inches, made of durable material, fixed in a conspicuous place in the machinery spaces, or at the bilge and ballast pump control station, stating the following:

DISCHARGE OF OIL PROHIBITED

The Federal Water Pollution Control Act prohibits the discharge of oil or oily waste into or upon the navigable waters and contiguous zone of the United States if such discharge causes a film or sheen upon, or discoloration of, the surface of the water, or causes a sludge or emulsion beneath the surface of the water. Violators are subject to a penalty of $5,000.

§ 155.470 Prohibited oil spaces.

(a) Except as provided in paragraph (b) of this section, no person may operate a self-propelled vessel of 300 or more gross tons carrying bulk oil or oily waste in any space forward of a collision bulkhead.

(b) Fuel for use on a vessel constructed on or after 1 July 1974, may be carried in tanks forward of a collision bulkhead if such tanks are at least 24 inches inboard of the hull structure. Fuel for use on a vessel constructed before 1 July 1974, may be carried in tanks forward of a collision bulkhead if those tanks were designated, installed or constructed for fuel oil carriage also before 1 July 1974.

(33 U.S.C. 1321(j)(1) (C) and (D); Exec. Order No. 11735, 38 FR 21243 (1973); 49 CFR 1.46(m)) [CGD 75-026, 40 FR 42190, Sept. 11, 1975]

§ 155.480 Inspection of valves.

No person may operate any U.S. vessel that has a certificate of inspection issued under 46 CFR Ch. I unless each of the following valves has been opened, inspected, and found to function properly by the owner or operator of the vessel, or his representative, at, or since, the last drydocking or hauling out of the vessel required by 46 CFR Ch. I:

(a) Bilge emergency suction valves.

(b) Ballast sea suction valves, except in lines to oil-free tanks.

(c) Bilge overboard discharge valves.

(d) Ballast overboard discharge valves, except in lines to oil-free tanks.

(e) Valves used to separate clean ballast from oil or oily ballast.

(f) Valves used to isolate oil or oily ballast from the sea.

Subpart C—Oil Transfer Personnel Procedures, Equipment, and Records

§ 155.700 Designation of person in charge.

The operator, or his agent, of each vessel that has a capacity for 250 or more barrels of oil shall designate the person or persons in charge of each transfer of oil to or from the vessel and of each tank cleaning operation.

§ 155.710 Qualifications of person in charge.

(a) No person may serve, and the operator of a vessel may not use the services of a person, as a person in charge of the transfer of oil to or from a vessel or of tank cleaning operations unless—

(1) For oil transfer operations on self-propelled tank vessels, he holds a valid license authorizing service on inspected vessels as a master, mate, pilot, or engineer, except that the person in charge of tank cleaning operations conducted at a tank cleaning facility may be a tankerman certificated for the grade of cargo last carried; or

(2) For tank barges, he holds a valid license authorizing service on inspected vessels as a master, mate, engineer, or is a tankerman certificated for the grade of cargo carried; or

(3) For vessels other than tank vessels that are required by 46 CFR Ch. I to have a licensed officer on board, he holds a valid license as a master, mate, pilot, engineer, or operator; or

(4) For all uninspected vessels of 100 or more gross tons, he has been instructed by the operator in his duties and the Federal water pollution laws and regulations that apply to the vessel.

(5) For foreign vessels of the same size and type as those specified in subparagraphs (1), (2), and (3) of this paragraph, he holds a license or certificate authorizing service on that vessel as a master, mate, pilot, engineer, or operator.

§ 155.720 Oil transfer procedures.

No person may operate a vessel that has a capacity for 250 or more barrels of oil that is transferring oil unless that vessel has oil transfer procedures that meet the requirements of this part.

§ 155.730 Compliance with oil transfer procedures.

The operator of each vessel required by § 155.720 to have oil transfer procedures shall maintain them current and shall use and require its personnel to use the oil transfer procedures for each oil transfer operation.

§ 155.740 Posting of oil transfer procedures.

The oil transfer procedures required by § 155.720 must be—

(a) Legibly printed in a language understood by the crew; and

(b) Permanently posted or available at the fueling station or cargo control station or a place where the procedures can be easily seen and used by those members of the crew who engage in oil transfer operations.

§ 155.750 Contents of oil transfer procedures.

The oil transfer procedures required by § 155.720 must contain—

(a) If the vessel carries incompatible products, a list of the products to which the oil transfer procedures apply;

(b) A description of each oil transfer system installed on the vessel including—

(1) A line diagram of the vessel's oil transfer piping including the location of each valve, pump, control device, vent, and overflow; and

(2) The location of the shutoff valve or other isolation device that separates any bilge or ballast system from the oil transfer system.

(c) The number of persons required to be on duty during oil transfer operations;

(d) The duties by title of each officer, person in charge, tankerman, deckhand, and any other person required for each oil transfer operation;

(e) Procedures and duty assignments for tending the vessel's moorings during the transfer of oil;

(f) Procedures for operating the emergency shutdown means required by § 155.780;

(g) Any special procedures for topping off tanks;

(h) Procedures for insuring that all valves used during the oil transfer operations are closed upon completion of transfer;

(i) A description of the deck discharge containment system;

(j) The procedures for emptying the deck discharge containment system; and

(k) Procedures for reporting oil discharges on the water.

§ 155.760 Amendment of oil transfer procedures.

(a) The Captain of the Port or Officer in Charge, Marine Inspection may require the operator of any vessel that is required to have oil transfer procedures to amend those procedures if, after inspection, he finds that the oil transfer procedures are not adequate to meet the requirements of Part 156 of this chapter. See § 155.730.

(b) When the Captain of the Port or Officer in Charge, Marine Inspection determines to require an amendment of an oil transfer procedure, he notifies the operator, in writing, of a date not less than 14 days from the date of the notice on or before which the operator may submit written information, views, and arguments on the amendment. After considering all relevant material presented, the Captain of the Port or Officer in Charge, Marine Inspection notifies the operator of any amendment required or of his decision to rescind the notice. The amendment becomes effective not less than 30 days after the operator receives the notice, unless the operator petitions the Commandant to reconsider the notice, in which case its effective date is stayed pending a decision by the Commandant. Petitions to the Commandant must be submitted in writing to the Captain of the Port or Officer in Charge, Marine Inspection who issued the requirement to amend.

(c) If the Captain of the Port or Officer in Charge, Marine Inspection finds that there is a condition requiring immediate action to prevent the discharge or risk of discharge of oil that makes the procedure in paragraph (b) of this section impractical or contrary to the public interest, he may issue an amendment effective, without stay, on the date the operator receives notice of it. In such a case, the Captain of the Port or Officer in Charge, Marine Inspection includes a brief statement of the reasons for his finding in the notice, and the operator may petition the District Commander, in any manner, to reconsider the amendment.

§ 155.770 Machinery oil drains: U.S. vessels.

No person may drain the sumps of oil lubricated machinery or the contents of oil filters, strainers, or purifiers into the bilge of any U.S. vessel.

§ 155.780 Emergency shutdown.

(a) No person may operate a tank vessel carrying oil that has a capacity for 250 or more barrels of cargo oil unless it has on board an emergency means to enable the person in charge of the transfer of oil to stop the flow of oil to the facility or other vessel.

(b) The emergency means must be a pump control or a quick-acting, power actuated valve. If an emergency pump control is used, it must stop the flow of oil if oil could siphon through the stopped pump.

(c) The emergency means must be operable from the cargo deck, cargo control room, or the usual operating station of the person in charge of the transfer of oil.

§ 155.790 Deck lighting.

(a) No person may operate a self-propelled vessel that has a capacity for 250 or more barrels of oil that is transferring oil to or from the vessel between sunset and sunrise unless that self-propelled vessel has installed deck lighting that illuminates—

(1) Each oil transfer connection point in use with an average minimum lighting intensity of 5 foot-candles; and

(2) Each oil transfer operations work area with an average minimum lighting intensity of 1 foot-candle.

(b) The lighting intensity must be measured on a horizontal plane 3 feet above the deck or walking surface.

§ 155.800 Oil transfer hose.

No person operating any vessel may use, and no person may operate a U.S. vessel that carries an oil transfer hose that is larger than 3 inches inside diameter unless it meets the requirements of § 154.500 of this chapter.

§ 155.810 Tank vessel security.

The owner or operator or person having custody of each tank vessel that contains more oil than the normal clingage and unpumpable bilge or sump residues in any cargo tank shall maintain surveillance of that vessel by a person who is responsible for the security of the vessel and for keeping unauthorized persons off the vessel.

§ 155.820 Records.

The owner or operator of each vessel subject to the following referenced regulations shall keep a written record available for inspection by the Commandant of—

(a) The name of each person currently designated as a person in charge of oil transfer operations as required by § 155.700;

(b) The date and result of the most recent test or inspection of each item tested or inspected as required by § 156.170 of this chapter;

(c) The hose information required by § 154.500(f) of this chapter unless that information is marked on the hose; and

(d) The date and location of each valve inspection required by § 155.480.

APPENDIX A

SPECIFICATIONS FOR SHORE CONNECTION

[See §§ 340, 350, 370, and 380 of this part]

Item	Description	Dimension
	Outside diameter	215 mm. (8½ in.).
2	Inside diameter	According to pipe outside diameter.
3	Bolt circle diameter	183 mm. (7³⁄₁₆ in.).
4	Slots in flange	6 holes 22 mm. (⅞ in.) in diameter shall be equidistantly placed on a bolt circle of the above diameter, slotted to the flange periphery. The slot width is to be 22 mm. (⅞ in.).
5	Flange thickness	20 mm. (¾ in.).
6	Bolts and nuts	6, each of 20 mm. (¾ in.) in diameter and of suitable length.

The flange shall be of steel having a flat face, with a gasket of oilproof material, and both shall be suitable for a service pressure of 6 kg./cm.² (85 p.s.i.).

The steel materials used shall meet the material specifications of standard B16.5, Steel Pipe Flanges and Flanged Fittings of the American National Standards Institute (ANSI).

PART 156—OIL TRANSFER OPERATIONS

Sec.

156.100 Applicability.
156.105 Definitions.
156.107 Waivers.
156.110 Person in charge: Limitations.
156.120 Requirements for oil transfer.
156.130 Connections.
156.150 Declaration of inspection.
156.160 Supervision by person in charge.
156.170 Equipment tests and inspections.

AUTHORITY: Section 311(j)(1)(C) and (D) of the Federal Water Pollution Control Act (86 Stat. 816, 868); 33 U.S.C. 1161(j)(1)(C) and (D); E.O. 11548, 3 CFR, 1966–1970 Comp., p. 949; 49 CFR 1.46(m).

SOURCE: CGD 71-160R, 37 FR 28259, Dec. 21, 1972, unless otherwise noted.

§ 156.100 Applicability.

This part applies to the transfer of oil to or from any vessel with a capacity of 250 or more barrels for that oil on the navigable waters or contiguous zone of the United States, except the transfer of—

(a) Lubricating oil for use on board the vessel; and

(b) Non-petroleum-based oil that is transferred to or from a vessel other than a tank vessel.

§ 156.105 Definitions.

As used in this part:

(a) "Barrel" means that unit of liquid measure equivalent to 42 U.S. gallons at 60° F.

(b) "Captain of the Port" means a U.S. Coast Guard officer commanding a Captain of the Port area described in Part 3 of this chapter or his authorized representative or, where there is no Captain of the Port area, a District Commander of a Coast Guard district described in Part 3 of this chapter or his authorized representative.

(c) "District Commander" as used in this part means the officer of the Coast Guard designated by the Commandant to command a Coast Guard District as described in Part 3 of this chapter or his authorized representative.

(d) "Facility" means either an onshore facility or an offshore facility.

(e) "Offshore facility" means any facility of any kind located in, on, or under any of the navigable waters of the United States other than a vessel or a public vessel.

(f) "Oil" means oil of any kind or in any form including, but not limited to, petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil. For the purpose of this part liquefied petroleum gas (LNG and LPG) are excluded.

(g) "Onshore facility" means any facility (including, but not limited to motor vehicles and rolling stock) of any kind located in, on, or under any land within the United States other than submerged land.

(h) "Person in charge" means a person designated as a person in charge of oil transfer operations under § 154.710 or § 155.700 of this chapter.

(i) "Public vessel" means a vessel owned or bare-boat chartered and operated by the United States, or by a State or political subdivision thereof, or by a foreign nation, except when such a vessel is engaged in commerce.

(j) "Tank vessel" means any vessel especially constructed or converted to carry liquid bulk cargo in tanks.

(k) "Tank barge" means any tank vessel not equipped with a means of self propulsion.

(l) "Vessel" means every description of watercraft, or other artificial contrivance used, or capable of being used, as a means of transportation on water other than a public vessel.

§ 156.107 Waivers.

The Captain of the Port may waive, in whole or in part, compliance with any requirement in this part if—

(a) Application for the waiver is submitted to the Captain of the Port 30 days before operations under the waiver are proposed unless a shorter time is authorized by the Captain of the Port; and

(b) The Captain of the Port finds that an equivalent level of protection of the navigable waters and contiguous zone from pollution by oil will be provided by the alternative procedures, methods or equipment standards to be used.

§ 156.110 Person in charge: Limitations.

(a) No person may serve as the person in charge of oil transfer operations on more than one vessel at a time unless—

(1) The vessels are immediately adjacent;

(2) There is a ready means of access between vessels; and

(3) The person in charge is not also the person in charge of the facility.

(b) No person may serve as the person in charge of both the vessel and the facility during oil transfer operations except when the Captain of the Port authorizes such procedure.

§ 156.120 Requirements for oil transfer.

No person may transfer oil to or from a vessel unless—

(a) The vessel's moorings are strong enough to hold in all expected conditions of surge, current, and weather and are long enough to allow adjustment for changes in draft, drift, and tide during the transfer operation;

(b) Oil transfer hoses or loading arms are long enough to allow the vessel to move to the limits of its moorings without placing strain on the hose, loading arm, or transfer piping system;

(c) Each hose is supported in a manner that prevents strain on its coupling;

(d) Each part of the transfer system necessary to allow the flow of oil is lined up for the transfer;

(e) Each part of the transfer system not necessary for the transfer operation is securely blanked or shut off;

(f) The transfer system is connected to a fixed piping system on the receiving vessel or facility except that when receiving fuel for the vessel an automatic

back pressure shutoff nozzle may be used;

(g) Except when used to receive or discharge ballast, each overboard discharge or sea suction valve that is connected to the vessel's oil transfer, ballast, or cargo tank systems is sealed, lashed, or locked in the closed position;

(h) Each oil transfer hose has no loose covers, kinks, bulges, soft spots, and no gouges, cuts, or slashes that penetrate the hose reinforcement;

(i) Each coupling meets the requirement of § 156.130;

(j) The discharge containment required by §§ 154.530, 155.310, and 155.320 of this chapter, as appropriate, is in place;

(k) Each scupper or drain in a discharge containment system is closed;

(l) Any continuing loss of oil from any transfer component is at a rate that will not exceed the capacity of the containment system;

(m) The communications required by § 154.560 of this chapter are operable for the transfer operation;

(n) The emergency means of shutdown required by §§ 154.550 and 155.780 of this chapter, as appropriate, is in position and operable;

(o) The designated personnel are on duty to conduct the transfer operations in accordance with the facility operations manual and vessel oil transfer procedures that apply to the transfer operation;

(p) At least one person is present who fluently speaks the language spoken by each person in charge;

(q) The person in charge of oil transfer operations on the transferring vessel or facility and the person in charge of oil transfer operations on the receiving vessel or facility have held a conference, to assure that each person in charge understands the following details of the transfer operations—

(1) The identity of the product to be transferred.

(2) The sequence of transfer operations.

(3) The transfer rate.

(4) The name or title and location of each person participating in the transfer operation.

(5) Particulars of the transferring and receiving systems.

(6) Critical stages of the transfer operation.

(7) Federal, State, and local rules that apply to the transfer of oil.

(8) Emergency procedures.

(9) Discharge containment procedures.

(10) Discharge reporting procedures.

(11) Watch or shift arrangement.

(12) Transfer shutdown procedures.

(r) The person in charge of oil transfer operations on the transferring vessel or facility and the person in charge of oil transfer operations on the receiving vessel or facility agree to begin the transfer operation;

(s) Each person in charge required by this part is present;

(t) Between sunset and sunrise the lighting required by §§ 154.570 and 155.790 of this chapter is provided; and

(u) For vessel to vessel transfer operations involving a tank barge between sunset and sunrise, lighting of the intensity specified in § 155.790 of this chapter is provided on the barge.

§ 156.130 Connections.

(a) Each person who makes a connection for oil transfer operations shall—

(1) Use suitable material in joints and couplings to make a tight seal;

(2) Use a bolt in at least every other hole and in no case less than four bolts in each temporary connection utilizing an American National Standards Institute (ANSI) standard flange coupling;

(3) Use a bolt in each hole of couplings other than ANSI standard flange couplings;

(4) Use a bolt in each hole of each permanently connected flange coupling;

(5) Use bolts of the same size in each bolted coupling; and

(6) Tighten each bolt and nut uniformly to distribute the load.

(b) No person who makes a connection for oil transfer operations may use any bolt that shows signs of strain or is elongated or deteriorated.

(c) No person may use a connection for oil transfer operations unless it is—

(1) A bolted or full threaded connection; or

(2) A quick-connect coupling approved by the Commandant; or

(3) An automatic back pressure shutoff nozzle used to fuel the vessel.

§ 156.150 Declaration of inspection.

(a) No person may transfer oil to or from a vessel unless each person in charge, designated under §§ 154.710 and 155.700 of this chapter, has signed the

declaration of inspection form prescribed in paragraph (c) of this section.

(b) No person in charge may sign the declaration of inspection unless he or the other person in charge has determined by inspection that the facility and vessel meets the requirements in § 156.120.

(c) The declaration of inspection required to be signed in paragraph (a) of this section may be in any form but must contain at least—

(1) The name or other identification of the transferring vessel or facility and the receiving vessel or facility;

(2) The address of the facility or location of the transfer operation if not at a facility;

(3) The date the transfer operation is started;

(4) A list of the requirements in § 156.120 of this chapter with spaces on the form following each requirement for the person in charge of the vessel or facility to indicate whether the requirement is met for the transfer operation; and

(5) A space for the date, time of signing, signature, and title of each person in charge during oil transfer operations on the transferring vessel or facility and a space for the date, time of signing, signature, and title of each person in charge during the oil transfer operations on the receiving facility or vessel.

(d) The form for the declaration of inspection required in paragraph (a) of this section may incorporate the declaration-of-inspection requirements of 46 CFR 35.35–30.

(e) The operator of each facility shall retain for at least 1 month from the date of signature, a signed copy of each declaration of inspection required for that facility.

(f) The operator of each vessel engaged in vessel-to-vessel transfers shall retain for at least 1 month from the date of signature a signed copy of each declaration of inspection for such vessel-to-vessel transfers.

§ 156.160 Supervision by person in charge.

(a) No person may connect, top off, disconnect, or engage in any other critical oil transfer operation unless the person in charge, designated under § 154.710 or § 155.700 of this chapter, personally supervises the operation.

(b) No person may start the flow of oil to or from a vessel unless instructed to do so by the person in charge.

(c) No person may transfer oil to or from a vessel unless the person in charge is in the immediate vicinity of the transfer operation and immediately available to the oil transfer personnel.

§ 156.170 Equipment tests and inspections.

(a) No person may use any item of equipment listed in paragraph (c) of this section, except hose used in underwater service, in oil transfer operations unless the operator of the vessel or facility has tested and inspected it annually in accordance with paragraphs (b) and (c) of this section and found that it is in the condition specified in paragraph (c) of this section.

(b) During any test or inspection required by this section, a hose must be in a straight and horizontal position and the entire external surface must be accessible.

(c) For the purpose of paragraph (a) of this section—

(1) Each nonmetallic oil transfer hose that is larger than 3 inches inside diameter must—

(i) Have no loose covers, kinks, bulges, soft spots, and no gouges, cuts, or slashes that penetrate the hose reinforcement;

(ii) Have no external and, to the extent internal inspection is possible with both ends of the hose open, no internal deterioration; and

(iii) Not burst, bulge, leak, or abnormally distort under static liquid pressure at least as great as the pressure of the relief valve setting (or maximum pump pressure when no relief valve is installed) plus any static head pressure of the system in which the hose is used;

(2) Each transfer system relief valve must open at or below the pressure at which it is set to open;

(3) Each pressure gage must show pressure within 10 percent of the actual pressure;

(4) Each loading arm and each oil transfer piping system, including each metallic hose, must not leak under static liquid pressure at least as great as the pressur of the relief valve setting (or maximum pump pressure when no relief valve is installed) plus any static head pressure in the system; and

(5) Each item of remote operating or indicating equipment, such as a remotely operated valve, tank level alarm, or emergency shutdown device, must perform its intended function.

(d) No person may use any hose in underwater service for oil transfer operations unless the operator of the vessel or facility has tested and inspected it biennially in accordance with paragraph (c)(1) or (c)(4) of this section, as applicable.

PART 157—RULES AND REGULATIONS FOR PROTECTION OF THE MARINE ENVIRONMENT RELATING TO TANK VESSELS CARRYING OIL IN DOMESTIC TRADE

Subpart A—General

Sec.

157.01 Purpose.
157.03 Definitions.
157.05 Performing calculations for this part.
157.07 Equivalents.

Subpart B—Design and Equipment

157.08 Applicability.
157.09 Segregated ballast.
157.11 Pumping, piping, and discharge arrangements.
157.13 Designated observation area.
157.15 Slop tanks in tank vessels.
157.17 Oily residue tank.
157.19 Cargo tank arrangement and size.
157.21 Subdivision and stability.
157.22 [Reserved]
157.23 Cargo and ballast system information.
157.24 Submission of calculations, plans, and specifications.

Subpart C—Vessel Operation

157.25 Applicability.
157.27 Discharges: Tank vessels carrying oil exclusively on rivers, lakes, bays, sounds, and the Great Lakes, and seagoing tank vessels of less than 150 gross tons.
157.28 Discharges from tank barges exempted from certain design requirements.
157.29 Discharges: Seagoing tank vessels of 150 gross tons or more.
157.31 Discharges: Chemical additives.
157.33 Water ballast in oil fuel tanks.
157.35 Ballast added to cargo tanks.
157.37 Discharge of cargo residue.
157.39 Machinery space bilges.
157.41 Emergencies.
157.43 Discharge in port or at an offshore terminal.
157.45 Valves in cargo or ballast piping system.
157.47 Information for master.
157.49 Instruction manual.
Appendix A—Damage assumptions, hypothetical outflows, and cargo tank size and arrangements.
Appendix B—Subdivision and Stability Assumptions.

AUTHORITY: R.S. 4417a(3) and (7), as amended (46 U.S.C. 391a(3) and (7)); 49 CFR 1.46(n)(4).

SOURCE: CGD 74–32, 40 FR 48283, Oct. 14, 1975, unless otherwise noted.

Subpart A—General

§ 157.01 Purpose.

The purpose of the regulations in this part is to prescribe design, equipment and operation requirements for seagoing United States tank vessels engaged in the carriage of oil in domestic trade that are in addition to those requirements in 46 CFR Subchapters D and O.

§ 157.03 Definitions.

As used in this part:

(a) "Length" or "L" means the distance in meters from the fore side of the stem to the axis of the rudder stock on a waterline at 85 percent of the least molded depth measured from the molded baseline, or 96 percent of the total length on that waterline, whichever is greater. In vessels designed with drag, the water line is measured parallel to the designed waterline.

(b) "Amidships" means the middle of the length.

(c) "Breadth" or "B" means the maximum molded breadth of a vessel in meters.

(d) "Center tank" means any tank inboard of a longitudinal bulkhead.

(e) "Clean ballast" means the ballast in a cargo tank which, if discharged from a vessel that is stationary into clean, calm water on a clear day, would not—

(1) produce visible traces of oil on the surface of the water or on adjoining shore lines; or

(2) cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shore lines.

(f) "Combination carrier" means a vessel designed to carry oil or solid cargoes in bulk.

(g) "Deadweight" or "DWT" means the difference in metric tons between the lightweight displacement and the total displacement of a vessel measured in water of specific gravity 1.025 at the load waterline corresponding to the assigned summer freeboard.

(h) "Lightweight" means the displacement of a vessel in metric tons without cargo, oil fuel, lubricating oil, ballast water, fresh water, and feedwater in tanks, consumable stores, and any persons and their effects.

(i) "New Vessel" means a vessel that—
(1) is constructed under a contract awarded after December 31, 1974;
(2) in the absence of a building contract, has the keel laid or is at a similar stage of construction after June 30, 1975;
(3) is delivered after December 31, 1977; or
(4) has undergone a major conversion for which—
(i) the contract is awarded after December 31, 1974;
(ii) in the absence of a contract, conversion is begun after June 30, 1975; or
(iii) conversion is completed after December 31, 1977.

(j) "Existing vessel" means any vessel that is not a new vessel.

(k) "Major conversion" means a conversion of an existing vessel that—
(1) substantially alters the dimensions or carrying capacity of the vessel;
(2) changes the type of the vessel; or
(3) substantially prolongs the vessel's service life.

(l) "From the nearest land" means from the baseline from which the territorial sea of the United States is established in accordance with international law.

(m) "Instantaneous rate of discharge of oil content" means the rate of discharge of oil in liters per hour at any instant, divided by the speed of the vessel in knots at the same instant.

(n) "Oil" means oil of any kind or in any form, except petrochemicals, and includes but is not limited to petroleum, fuel oil, sludge, oil refuse, and oil mixed with wastes other than dredged spoil.

(o) "Oil fuel" means any oil used as fuel for machinery in the vessel in which it is carried.

(p) "Oily mixture" means a mixture with any oil content.

(q) "Permeability of a space" means the ratio of the volume within a space that is assumed to be occupied by water to the total volume of that space.

(r) "Segregated ballast" means the ballast water introduced into a tank that is completely separated from the cargo oil and oil fuel system and that is permanently allocated to the carriage of ballast.

(s) "Slop tank" means a tank specifically designated for the collection of cargo drainings, washings, and other oil mixtures.

(t) "Tank" means an enclosed space that is formed by the permanent structure of a vessel, and designed for the carriage of liquid in bulk.

(u) "Tank barge" means a tank vessel not equipped with a means of self-propulsion.

(v) "Tank vessel" means a vessel that is specially constructed or converted to carry liquid bulk cargo in tanks and includes tankers, tankships, tank barges, and combination carriers when carrying oil cargoes in bulk.

(w) "U.S. vessel" means a vessel that is owned, documented, or registered in the United States and is not a public vessel.

(x) "Wing tank" means a tank that is located adjacent to the side shell plating.

(y) "Tankship" means a tank vessel propelled by mechanical power or sail.

(z) "Domestic trade" means trade between ports or places within the United States, its territories and possessions, either directly or via a foreign port including trade on the navigable rivers, lakes, and inland waters.

(aa) "Cargo tank length" means the length from the collision bulkhead to the forward bulkhead of the machinery spaces.

[CGD 74–32, 40 FR 48283, Oct. 14, 1975, as amended by CGD 75–201, 41 FR 1482, Jan. 8, 1976]

§ 157.05 Performing calculations for this part.

In this part, unless the context requires otherwise—

(a) Formulas are in the International System of Units (SI);

(b) Values used in those formulas must be in the International System of Units; and

(c) Forward and after perpendiculars are located at the forward end and at the after end of the length. The forward perpendicular coincides with the foreside of the stem on the waterline on which the length of the vessel is measured.

§ 157.07 Equivalents.

The Coast Guard may accept an equivalent, in accordance with the procedure in 46 CFR 30.15–1, of a design or an equipment to fulfill a requirement in this part except an operational method may not be substituted for a design or equipment requirement.

Subpart B—Design and Equipment

§ 157.08 Applicability.

(a) The requirements in this subpart apply to seagoing tank vessels of 150 gross tons or more except as follows:

(1) The requirements in §§ 157.11, 157.13, and 157.15 do not apply to a tank vessel that carries asphalt exclusively.

(2) The requirements in §§ 157.11, 157.13, 157.15, and 157.23 do not apply to a tank barge that can not ballast cargo tanks or wash cargo tanks while proceeding en route.

(3) The requirements in §§ 157.19 and 157.21 do not apply to a tank barge whose certificate is endorsed by the Coast Guard for a limited short protected coastwise route if the barge is constructed and certificated primarily for service on an inland route.

(4) The requirements in § 157.09(d) do not apply to vessels constructed under a contract awarded before January 8, 1976.

(b) The requirements in § 157.21 also apply to tank vessels engaged in the carriage of oil on the navigable waters of the Great Lakes.

[CGD 74-32, 40 FR 48283, Oct. 14, 1975, as amended by CGD 75-201, 41 FR 1482, Jan. 8, 1976]

§ 157.09 Segregated ballast.

(a) A new vessel of 70,000 tons DWT or more must have segregated ballast tanks that have a total capacity to allow the vessel to meet the draft and trim requirements in paragraph (b) of this section without recourse to the use of oil tanks for water ballast.

(b) In any ballast condition during any part of a voyage, including that of lightweight with only segregated ballast, the vessel's drafts and trim must have the capability of meeting each of the following requirements:

(1) The molded draft amidship (dm) in meters without taking into account vessel deformation must not be less than dm in the following mathematical relationship:

$$dm=2.0+0.02L$$

(2) The drafts at the forward and after perpendiculars must correspond to those determined by the draft amidship as specified in paragraph (b)(1) of this section, in association with the trim by the stern of no more than 0.015L.

(3) The minimum allowable draft at the after perpendicular is that which is necessary to obtain full immersion of the propeller.

(c) The vessel may be designed to carry ballast water in cargo tanks during the condition described in § 157.35.

(d) Segregated ballast spaces, voids, and other noncargo-carrying spaces for a vessel of conventional form must be distributed—

(1) So that the mathematical average of the hypothetical collision (O_c) and the hypothetical stranding (O_s) outflows as determined by the application of the procedures in § 157.19 and Appendix B is 80 percent or less of the maximum allowable outflow (O_A) as determined by paragraph 157.19(b)(1); and

(2) To protect at least 45 percent of the sum of the side and bottom shell areas, based upon projected molded dimensions, within the cargo tank length. When the vessel design configuration does not provide for the spaces to be distributed to protect at least 45 percent of the side and bottom shell areas, the spaces must be distributed so that the mathematical average of the hypothetical collision (O_c) and the hypothetical stranding (O_s) outflows, determined by application of the procedures in § 157.19 and Appendix B, is a further 2 percent less than the maximum allowable outflow (O_A) for each 1 percent by which the shell area protection coverage required is not achieved.

(e) A ballast space, void or other noncargo-carrying space used to meet requirements in paragraph (d) of this section must separate the cargo tank boundaries from the shell plating of the vessel by at least 2 meters.

(f) A vessel of conventional form for application of this section has—

(1) A block coefficient of .80 or greater,

(2) A length to depth ratio between 12 and 16, and

(3) A breadth to depth ratio between 1.5 and 3.5.

(g) Segregated ballast spaces, voids, and other noncargo-carrying spaces for a vessel not of conventional form must be distributed in a configuration acceptable to the Coast Guard.

[CGD 74-32, 40 FR 48283, Oct. 14, 1975, as amended by CGD 74-32, 40 FR 49328, Oct. 22, 1975; CGD 75-201, 41 FR 1482, Jan. 8, 1976]

§ 157.11 Pumping, piping, and discharge arrangements.

(a) Each tank vessel must have a fixed piping system arranged for the—

(1) Transfer of dirty ballast residue and tank washings from each cargo tank to a slop tank;

(2) Discharge to the sea under § 157.37; and

(3) Discharge in a port or at an offshore terminal under § 157.43.

(b) Each tank vessel must have the fixed piping system arranged to, for discharges under paragraph (a)(2) of this section, terminate above the weather deck or on the vessel's side above the waterline of the deepest ballast condition.

(c) Each tank vessel must have a cargo or ballast discharge manifold that—

(1) Is located on the weather deck;

(2) Terminates on each side of the vessel; and

(3) Is connected to the piping system required in paragraph (a)(1) of this section for the transfer to a reception facility of oily mixtures that cannot be discharged under §§ 157.37 or 157.43.

NOTE: An existing vessel must comply with the requirements in § 157.11 before December 31, 1977.

§ 157.13 Designated observation area.

A new vessel must have a designated observation area on the weather deck or above that is—

(a) Located so that the effluent from the pipeline terminations required in § 157.11(a) and the manifold required in § 157.11(c) may be visually observed; and

(b) Equipped with—

(1) A means to directly stop the discharge of effluent into the sea; or

(2) A positive communication system, such as a telephone or a radio, between the observation area and the discharge control position.

§ 157.15 Slop tanks in tank vessels.

(a) *Number.* A tank vessel must have the following number of slop tanks that comply with the requirements of this section:

(1) A new vessel of less than 70,000 tons DWT and an existing vessel must have at least one slop tank.

(2) A new vessel of 70,000 tons DWT or more must have at least two slop tanks.

(b) *Capacity.* Slop tanks required in this section must have a capacity to retain two percent or more of the oil carrying capacity of the vessel except nonsegregated ballast tank vessels that have tank eductors installed must have a slop tank capacity of three percent or more of the oil carrying capacity of the vessel.

(c) *Design.* A slop tank required in this section—

(1) Must minimize turbulence, entrainment of oil, and the creation of an emulsion by the use of separate inlet and outlet connections; and

(2) May carry bulk oil when not being used as a slop tank.

NOTE: An existing vessel must comply with the requirements in § 157.15 before December 31, 1977.

§ 157.17 Oily residue tank.

(a) A tank vessel of 400 gross tons or more must have a tank that receives and holds oily residue resulting from purification of fuel and lubricating oil and from oil leakages in machinery spaces.

(b) Each oily residue tank required in paragraph (a) of this section must have an adequate capacity that is determined by the—

(1) Type of machinery installed on the vessel; and

(2) Maximum fuel oil capacity.

(c) Each oily residue tank on a new vessel must be designed to facilitate—

(1) Cleaning; and

(2) Discharging to a reception facility.

NOTE: An existing vessel must comply with the requirements in § 157.17 (a) and (b) before December 31, 1977.

§ 157.19 Cargo tank arrangement and size.

(a) The requirements in this section apply to—

(1) A new vessel;

(2) A tank vessel delivered after January 1, 1977; and

(3) A tank vessel that is delivered before January 1, 1977, for which the building contract is awarded after January 1, 1972, or, if there is no building contract, the keel is laid or the vessel is at a similar stage of construction after June 30, 1972.

(b) As determined in accordance with the procedures contained in Appendix A of this part, each cargo tank must be of such size and arrangement that—

(1) The hypothetical outflow for side damage (O_C) or for bottom damage (O_S) anywhere within the length of the vessel must not exceed O_A (30,000 cubic meters or 400 $\sqrt[3]{\text{DWT}}$, whichever is greater, limited to a maximum of 40,000 cubic meters);

(2) The volume of each wing tank and center tank is less than the allowable

volume of a wing tank (VOL_w) and the allowable volume of a center tank (VOL_c) respectively; and

(3) The length of a tank is less than the allowable length of a tank (l_a).

(c) If a cargo transfer system interconnects two or more cargo tanks, the system must have valves to segregate the tanks from each other.

(d) If a line of piping that runs through a cargo tank in a position less than t_c from the vessel's side or less than v_s from the vessel's bottom, as defined in Appendix A of this part, has a branch, that branch must have a valve within each cargo tank into which the branch opens.

(e) If piping that serves suction wells is installed within a double bottom, that piping must be—

(1) Fitted with valves located at the point of connection to the tank served to prevent oil outflow in the event of damage to the piping; and

(2) Designed to be installed as high from the bottom shell as possible.

NOTE: Vessels within the categories in § 157.19(a)(3) must meet the requirements in § 157.19 before December 31, 1976. If a vessel is constructed under a contract that was awarded before January 1, 1974 and does not carry crude oil, fuel oil, heavy diesel oil, or lubricating oil; the requirements in § 157.19 do not apply.

CROSS REFERENCE: See 33 CFR 151.50 (39 FR 30125) for an interpretative rule concerning tank arrangement and size limitations applicable to seagoing tank barges.

§ 157.21 Subdivision and stability.

A new vessel must meet the following subdivision and damage stability criteria after assuming side and bottom damage as defined in Appendix B of this part. A vessel that meets the requirements in this section is considered by the Coast Guard as meeting 46 CFR 42.20–5.

(a) The final waterline, taking into account sinkage, heel, and trim, must be below the lower edge of an opening through which progressive flooding may take place, such as an air pipe, or any opening that is closed by means of a weathertight door or hatch cover. This opening does not include an opening closed by a—

(1) Watertight manhole cover;

(2) Flush scuttle;

(3) Small watertight cargo tank hatch cover that maintains the high integrity of the deck;

(4) Remotely operated watertight sliding door; or

(5) Side scuttle of the non-opening type.

(b) In the final stage of flooding, the angle of heel due to unsymmetrical flooding must not exceed 25 degrees, except that this angle may be increased to 30 degrees if no deck edge immersion occurs.

(c) For acceptable stability in the final stage of flooding, the righting lever curve must have a range of at least 20 degrees beyond the position of equilibrium in association with a maximum residual righting lever of at least 0.1 meter. For the calculations required in this section, weathertight openings or openings fitted with automatic closures, (*e.g.* a vent fitted with a ball check valve), need not be considered as points of downflooding within the range of residual stability, but other openings must be accounted for in the calculation.

§ 157.22 [Reserved]

§ 157.23 Cargo and ballast system information.

(a) Each tank vessel to which this part applies must have an instruction manual that describes the automatic and manual operation of the cargo and ballast system in the vessel.

(b) The format and information contained in the instruction manual required in paragraph (a) of this section must be similar to the manual entitled "Clean Seas Guide for Oil Tankers" which can be obtained from the International Chamber of Shipping, 30–32 St. Mary Axe, London, England, EC3A 8ET.

§ 157.24 Submission of calculations, plans, and specifications.

The owner, builder, or designer of a new vessel shall submit the following to the Coast Guard before construction of the vessel:

(a) Calculations to substantiate compliance with the tank arrangement and size requirements in § 157.19(b).

(b) Calculations to substantiate compliance with subdivision and damage stability requirements in § 157.21.

(c) Calculations to substantiate compliance with the segregated ballast distribution requirements in § 157.09(d).

(d) Plans and specifications required in 46 CFR 31.10–5 that include—

(1) The design characteristics of the vessel, the arrangements, configuration, and contents of the assumed damaged compartments; and

(2) The distributions, specific gravities, and the free surface effect of liquids.

[CGD 74–32, 40 FR 48283, Oct. 14, 1975, as amended by CGD 75–201, 41 FR 1482, Jan. 8, 1976]

Subpart C—Vessel Operation

§ 157.25 Applicability.

This subpart prescribes regulations for the discharging of clean ballast, segregated ballast, and oil mixtures from, and for the carriage of ballast water by—

(a) Tank vessels carrying oil exclusively on rivers, lakes, bays, sounds, and the Great Lakes; and

(b) Seagoing tank vessels.

§ 157.27 Discharges: Tank vessels carrying oil exclusively on rivers, lakes, bays, sounds, and the Great Lakes, and seagoing tank vessels of less than 150 gross tons.

Unless a tank vessel carrying oil exclusively on rivers, lakes, bays, sounds, and the Great Lakes, or a seagoing tank vessel of less than 150 gross tons discharges clean ballast or segregated ballast, the vessel must—

(a) Retain on board any oily mixture; or

(b) Transfer an oily mixture to a reception facility.

§ 157.28 Discharges from tank barges exempted from certain design requirements.

The person in charge of a tank barge exempted under § 157.08(a)(2) from the requirements in §§ 157.11, 157.13, 157.15, and 157.23 shall ensure that while the barge is proceeding en route—

(a) Cargo tanks are not ballasted or washed; and

(b) Oil or oily mixtures are not discharged.

§ 157.29 Discharges: Seagoing tank vessels of 150 gross tons or more.

Unless a seagoing tank vessel of 150 gross tons or more discharges an oily mixture in compliance with the requirements in §§ 157.37, 157.39, or 157.43, the vessel must—

(a) Retain the mixture; or

(b) Transfer the mixture to a reception facility.

§ 157.31 Discharges: Chemical additives.

No person may use a chemical additive to circumvent the discharge requirements in §§ 157.27, 157.29, 157.37, 157.39, and 157.43.

§ 157.33 Water ballast in oil fuel tanks.

A new vessel may not carry ballast water in an oil fuel tank.

§ 157.35 Ballast added to cargo tanks.

A tank vessel that meets the design requirement in § 157.09 may carry water ballast in cargo tanks during abnormally severe weather conditions if more ballast water than can be carried in segregated ballast tanks is required for the safety of the vessel. This ballast water must be—

(a) Processed and discharged in compliance with the requirements in § 157.37; and

(b) Recorded in the Oil Record Book under § 151.35(c)(1)(vii) of this chapter.

§ 157.37 Discharge of cargo residue.

(a) Except as required in paragraph (b) of this section, a tank vessel may discharge into the sea an oily mixture from a cargo tank and cargo pump room bilge if the vessel—

(1) Is more than 50 nautical miles from the nearest land;

(2) Is proceeding en route;

(3) Is discharging at an instantaneous rate of oil content not exceeding 60 liters per nautical mile;

(4) Is an existing vessel and the total quantity of oil discharged into the sea does not exceed 1/15,000 of the total quantity of the cargo that the discharge formed a part, or is a new vessel and the total quantity of oil discharged into the sea does not exceed 1/30,000 of the total quantity of the cargo that the discharge formed a part;

(5) Discharges above the waterline through the piping required in §157.11(a); and

(6) Has in operation an automatic oil discharge monitoring and control system approved by the Coast Guard (specification regulation to be proposed), except that system may be operated manually if—

(i) The automatic system fails during a ballast voyage;

(ii) The failure is recorded in the Oil Record Book;

(iii) The master ensures that the discharge is constantly monitored visually and promptly terminated when oil is detected in the discharge; and

(iv) The system is operated manually only until the ballast voyage is completed.

(b) A tank vessel that carries asphalt exclusively must transfer cargo residues and tank washings to a reception facility.

§ 157.39 Machinery space bilges.

(a) A tank vessel may discharge an oily mixture from a machinery space bilge that is combined with an oil cargo mixture if the vessel discharges in compliance with § 157.37.

(b) A tank vessel may discharge an oily mixture from a machinery space bilge that is not combined with an oil cargo mixture if the vessel—

(1) Is more than 12 nautical miles from the nearest land;

(2) Is proceeding en route;

(3) Is discharging an effluent with an oil content of less than 100 parts per million; and

(4) Has in operation an oil discharge monitoring and control system approved by the Coast Guard (specification regulation to be proposed) and oil water separating equipment approved by the Coast Guard (specification regulation to be proposed).

§ 157.41 Emergencies.

Sections 157.27, 157.29, 157.37, and 157.39 do not apply to a tank vessel that discharges into the sea oil or oily mixtures—

(a) For the purpose of securing the safety of the vessel or for saving life at sea; or

(b) As a result of damage to the vessel or its equipment if—

(1) Reasonable precautions are taken after the occurrence of the damage or discovery of the discharge for the purpose of preventing or minimizing the discharge; and

(2) The owner, master or person in charge did not intend to cause damage, or did not act recklessly and with knowledge that damage of the environment would probably result.

§ 157.43 Discharge in port or at an offshore terminal.

The master of a tank vessel shall ensure that—

(a) Segregated ballast is not discharged in a port or at an offshore terminal unless he finds no oily mixture in the ballast after—

(1) Visually examining the top of the ballast contents of each tank; or

(2) Testing the ballast contents of each tank with an oil/water interface detector; and

(b) Clean ballast is discharged in accordance with the requirement in § 157.37(a)(6).

§ 157.45 Valves in cargo or ballast piping system.

When a tank vessel is at sea and the tanks contain oil, valves and closing devices in the cargo or ballast piping system or in the transfer system must be kept closed except they may be opened for cargo or ballast transfer to trim the vessel.

§ 157.47 Information for master.

A master or person in charge of a tank vessel shall operate the vessel in accordance with the information required in 46 CFR 31.10–30(d) that includes:

(a) Stability information.

(b) Damage stability information determined in acordance with the criteria contained in Appendix B of this part.

(c) Loading and distribution of cargo information determined in compliance with the damage stability criteria required in Appendix B of this part.

§ 157.49 Instruction manual.

The master of a tank vessel shall ensure that the instruction manual under § 157.23 is available and used when the cargo or ballast systems are operated.

Appendix A—Damage Assumptions, Hypothetical Outflows, and Cargo Tank Size and Arrangements

1. *Source.* The procedures for the damage assumption calculations contained in this Appendix conform to Regulations 22, 23, and 24 of Annex I of the International Convention for the Prevention of the Pollution from Ships, 1973, done at London, November 2, 1973.

2. *Assumptions.* For the purpose of calculating hypothetical outflow from tank vessels, three dimensions of the extent of damage of a parallelepiped on the side and bottom of the vessel are assumed.

(a) For side damage, the conditions are as follows:

Damage	*Conditions*
(1) Longitudinal extent l_c	$\frac{1}{3} L^{\frac{2}{3}}$ or 14.5 m, whichever is less.
(2) Transverse extent (t_c) (inboard from the vessel's side at right angles to the centerline at the level corresponding to the assigned summer freeboard).	$\frac{B}{5}$ or 11.5 m, whichever is less.
(3) Vertical extent (v_c)	From the base line upwards without limit.

(b) For bottom damage, two conditions to be applied individually to the stated portions of the vessel, as follows:

Damage	Conditions	
	For 0.3L from the forward perpendicular of ship	Any other part of ship
(1) Longitudinal extent (l_s)	$\frac{L}{10}$	$\frac{L}{10}$ or 5 meters, whichever is less.
(2) Transverse extent (t_s)	$\frac{B}{6}$ or 10 meters, whichever is less but not less than 5 meters.	5 meters.
(3) Vertical extent from the base line (v_s).	$\frac{B}{15}$ or 6 meters, whichever is less	$\frac{B}{15}$ or 6 meters, whichever is less.

3. *Hypothetical Outflow of Oil.* (a) The hypothetical outflow of oil in the case of side damage (O_c) and bottom damage (O_s) is calculated by the following formula with respect to compartments breached by damage to all conceivable locations along the length of the vessel to the extent as defined in section 2 of this Appendix.

(1) For side damages: Formula I

$$O_c=\Sigma W_i+\Sigma K_iC_i$$

(2) For bottom damage: Formula II

$$O_s=\frac{1}{3}(\Sigma Z_iW_i+\Sigma Z_iC_i,$$

Where:

W_i=Volume of a wing tank assumed to be breached by the damage as specified in section 2 of this Appendix; W_i for a segregated ballast tank may be taken equal to zero;

C_i=Volume of a center tank assumed to be breached by the damage as specified in section 2 of this Appendix; C_i for a segregated ballast tank may be taken equal to zero;

$$K_i=1-\frac{b_i}{t_c}$$

when b_i is equal to or greater than t_c, K_i is equal to zero;

$$Z_i=1-\frac{h_i}{v_s}$$

when h_i is equal to or greater than v_s, Z_i is equal to zero;

b_i=Minimum width of wing tank under consideration measured inboard from the vessel's side at right angles to the centerline at the level corresponding to the assigned summer freeboard; and

h_i=Minimum depth of the double bottom under consideration; where no double bottom is fitted, h_i is equal to zero.

(b) If a void space or segregated ballast tank of a length less than l_c is located between wing oil tanks, O_c in formula I of this section may be calculated on the basis of volume W_1 being the actual volume of one such tank (where they are of equal capacity) or the smaller of the two tanks (if they differ in capacity), adjacent to such space, multiplied by S_1 as defined below and taking for all other wing tanks involved in such a collision the value of the actual full volume.

$$S_i=1-\frac{l_i}{l_s}$$

Where l_1=length of void space or segregated ballast tank under consideration.

(c) Credit is only given in respect to double bottom tanks which are either empty or carrying clean water when cargo is carried in the tanks above.

(1) If the double bottom does not extend for the full length and width of the tank involved, the double bottom is considered nonexistent and the volume of the tanks above the area of the bottom damage must be included in formula II of this section even if the tank is not considered breached because of the installation of such a partial double bottom.

(2) Suction wells may be neglected in the determination of the value h_1 if such wells are not excessive in area and extend below the tank for a minimum distance and in no case more than half the height of the double bottom. If the depth of such a well exceeds half the height of the double bottom, h_1 is taken equal to the double bottom height minus the well height.

(d) In the case where bottom damage simultaneously involves four center tanks, the value of O_s may be calculated according to formula III as follows:

$$O_s=\frac{1}{4}(\Sigma Z_iW_i+\Sigma Z_iC_i)$$

(e) Credit for reduced oil outflow from bottom damage may be applied to formula III for an installed emergency high suction cargo transfer system that—

(1) transfers within two hours oil equal to one half of the volume of the largest tank involved;

(2) has sufficient ballast or cargo tankage available to receive the transferred oil; and

(3) has the high suction piping installed at a height not less than the vertical extent of bottom damage (v_s).

4. *Allowable volumes of cargo tanks.*

(a) The allowable volume of a wing cargo tank (VOL_W) is equal to seventy-five percent of O_A. In a segregated ballast tank vessel VOL_W may equal O_A for a wing cargo oil tank located between two segregated ballast tanks each of length greater than l_c and width greater than t_c.

(b) The allowable volume of a center cargo tank (VOL_c) is 50,000 cubic meters.

5. *Allowable length of cargo tanks.* The allowable length of a cargo tank (l_a) is equal to the greater of 10 meters or more of the following values:

(a) If no longitudinal bulkhead is provided, 0.1L.

(b) If a longitudinal bulkhead is provided at the centerline only, 0.15L.

(c) If two or more longitudinal bulkheads are provided:

(1) For wing tanks, $0.2L$; and

(2) For center tanks—

If

(i) $\frac{b_i}{B}$

is equal to or greater than $\frac{1}{5}$, $0.2L$; or

If

(ii) $\frac{b_i}{B}$

is less than $\frac{1}{5}$; and—

(A) no centerline longitudinal bulkhead is provided,

$$\left(0.5\,\frac{b_i}{B}+0.1\right)L;$$

or

(B) a centerline longitudinal bulkhead is provided,

$$\left(0.25\,\frac{b_i}{B}+0.15\right)L.$$

[CGD 74–32, 40 FR 48283, Oct. 14, 1975, as amended by CGD 74–32, 40 FR 49328, Oct. 22, 1975]

Appendix B—Subdivision and Stability Assumptions

1. *Source.* The procedures for the loading assumption calculations contained in this Appendix conform to Regulation 25 of Annex I of the International Convention for the Prevention of the Pollution from Ships, 1973, done at London, November 2, 1973.

2. *Loading Assumptions.* For the purpose of calculating subdivision and damage stability for a tank vessel, the operating drafts must reflect actual partial or full load conditions consistent with trim and strength of the vessel. Ballast conditions need not be considered if the tank vessel is not carrying oil in cargo tanks excluding oily residues. Loading condition must reflect the specific gravities of the cargo.

3. *Damage Assumptions.*

(a) Damage is applied to all conceivable locations along the length of the vessel as follows:

(1) For a vessel of more than 225 meters in length, anywhere in the vessel's length.

(2) For a vessel of more than 150 meters, but not exceeding 225 meters in length, anywhere in the vessel's length except where the after or forward bulkhead bounding a machinery space located aft is involved in the damage assumption. The machinery space is calculated as a single floodable compartment.

(3) For a vessel 150 meters or less in length, anywhere in the vessel's length between adjacent transverse bulkheads except the machinery space.

(b) The extent and the character of the assumed side or bottom damage, as defined in section 2 of Appendix A of this part, must be applied except longitudinal bottom damage within 0.3L from the forward perpendicular must be assumed to be the same as that for side damage. If any damage of lesser extent results in a more severe condition, such damage must be assumed.

(c) If damage involves transverse bulkheads as specified in paragraphs (a)(1) and (2) of this section, transverse watertight bulkheads must be spaced at least at a distance equal to the longitudinal extent of the assumed damage specified in paragraph (b) of this section in order to be considered effective. Where transverse bulkheads are spaced at a lesser distance, one or more of these bulkheads within such extent of damage must be assumed as nonexistent for the purpose of determining flooded compartments.

(d) If the damages between adjacent transverse watertight bulkheads is within the definition contained in paragraph (a)(3) of this section, no main transverse bulkhead or a transverse bulkhead bounding side tanks or double bottom tanks is to be assumed damaged, unless—

(1) the spacing of the adjacent bulkheads is less than the longitudinal extent of assumed damage defined in paragraph (b) of this section; or

(2) there is a step or a recess in a transverse bulkhead of more than 3.05 meters in length, located within the extent of penetrations of assumed damage. The step formed by the after peak bulkhead and after peak tank top is not regarded as a step for these calculations.

(e) If pipes, ducts, or tunnels are situated within the assumed extent of damage, there must be arrangements so that progressive flooding may not thereby extend to compartments other than those assumed to be floodable for each case of damage.

4. *Characteristic and Condition Assumption for Calculations.*

(a) Account must be taken of any empty or partially filled tanks, the specific gravity of cargoes carried, and any outflow of liquids from damaged compartments.

(b) The permeabilities are assumed as follows:

Intended space use:	*Permeability*
Stores	0.60
Accommodation	0.95
Machinery	0.85
Voids	0.95
Consumable liquids	[1] 0 or 0.95
Other liquids	[2] 0 or 0.95

[1] Whichever results in the more severe requirements.

[2] The permeability of partially filled compartments must be consistent with actual density and the amount of liquid carried.

(c) The buoyancy of any superstructure directly above the side damage is to be disregarded. The unflooded parts of superstructures beyond the extent of damage may be taken into consideration if they are separated from the damaged space by watertight bulkheads and no progressive flooding of these intact spaces takes place. Class I doors are allowed in watertight bulkheads in the superstructure.

(d) The free surface effect is to be calculated—

(1) at an angle of heel of 5 degrees for each individual compartment; or

(2) by assessing the shift of liquids by moment of transference calculations.

(e) In calculating the effect of free surfaces of consumable liquids, it is to be assumed that, for each type of liquid, at least one transverse pair or a single centerline tank has a free surface and the tank or combination of tanks to be taken into account is to be those where the effect of free surface is the greatest.

PART 159—MARINE SANITATION DEVICES

Subpart A—General

Sec.
159.1 Purpose.
159.3 Definitions.
159.5 Requirements for vessel manufacturers.
159.7 Requirements for vessel operators.

Subpart B—Certification Procedures

159.11 Purpose.
159.12 Regulation for certification of existing devices.
159.13 [Reserved]
159.14 Application for certification.
159.15 Certification.
159.16 Authorization to label devices.
159.17 Changes to certified devices.
159.19 Testing equivalency.

Subpart C—Design, Construction, and Testing

159.51 Purpose and scope.
159.53 General requirements.
159.55 Identification.
159.57 Installation, operation, and maintenance instructions.
159.59 Placard.
159.61 Vents.
159.63 Access to parts.
159.65 Chemical level indicator.
159.67 Electrical component ratings.
159.69 Motor ratings.
159.71 Electrical controls and conductors.
159.73 Conductors.
159.75 Overcurrent protection.
159.79 Terminals.
159.81 Baffles.
159.83 Level indicator.
159.85 Sewage removal.
159.87 Removal fittings.
159.89 Power interruption: Type I and II devices.
159.93 Independent supporting.
159.95 Safety.
159.97 Safety: inspected vessels.
159.101 Testing: general.
159.103 Vibration test.
159.105 Shock test.
159.107 Rolling test.
159.109 Pressure test.
159.111 Pressure and Vacuum Pulse test.
159.115 Temperature range test.
159.117 Chemical resistance test.
159.119 Operability test; temperature range.
159.121 Sewage processing test.
159.123 Coliform test: Type I devices.
159.125 Visible floating solids: Type I devices.
159.126 Coliform test: Type II devices.
159.126a Suspended Solids Test: Type II devices.
159.127 Safety Coliform count: recirculating devices.
159.129 Safety: Ignition prevention test.
159.131 Safety: Incinerating device.

Subpart D—Recognition of Facilities

159.201 Application.
159.205 Criteria for recognition.

AUTHORITY: Sec. 312(b)(1), 86 Stat. 871 (33 U.S.C. 1322(b)(1); 49 CFR 1.45(b) and 1.46 (*l*) and (m).

SOURCE: CGD 73-83, 40 FR 4624, Jan. 30, 1975, unless otherwise noted.

Subpart A—General

§ 159.1 Purpose.

This part prescribes regulations governing the design and construction of marine sanitation devices and procedures for certifying that marine sanitation devices meet the regulations and the standards of the Environmental Protection Agency promulgated under section 312 of the Federal Water Pollution Control Act (33 U.S.C. 1322), to eliminate the discharge of untreated sewage from vessels into the waters of the United States, including the territorial seas. Subpart A of this part contains regulations governing the manufacture and operation of vessels equipped with marine sanitation devices.

§ 159.3 Definitions.

In this part:

(a) "Coast Guard" means the Commandant or his authorized representative.

(b) "Discharge" includes, but is not limited to, any spilling, leaking, pouring, pumping, emitting, emptying, or dumping.

(c) "Existing vessel" includes any vessel, the construction of which was initiated before January 30, 1975.

(d) "Inspected vessel" means any vessel that is required to be inspected under 46 CFR Chapter I.

(e) "Manufacturer" means any person engaged in manufacturing, assembling, or importing of marine sanitation devices or of vessels subject to the standards and regulations promulgated under section 312 of the Federal Water Pollution Control Act.

(f) "Marine sanitation device" and "device" includes any equipment for installation on board a vessel which is designed to receive, retain, treat, or discharge sewage, and any process to treat such sewage.

(g) "New vessel" includes any vessel, the construction of which is initiated on or after January 30, 1975.

(h) "Person" means an individual, partnership, firm, corporation, or association, but does not include an individual on board a public vessel.

(i) "Public vessel" means a vessel owned or bare-boat chartered and operated by the United States, by a State or political subdivision thereof, or by a foreign nation, except when such vessel is engaged in commerce.

(j) "Recognized facility" means any laboratory or facility listed by the Coast Guard as a recognized facility under this part.

(k) "Sewage" means human body wastes and the wastes from toilets and other receptacles intended to receive or retain body waste.

(l) "Territorial seas" means the belt of the seas measured from the line of ordinary low water along that portion of the coast which is in direct contact with the open sea and the line marking the seaward limit of inland waters, and extending seaward a distance of 3 miles.

(m) "Uninspected vessel" means any vessel that is not required to be inspected under 46 CFR Chapter I.

(n) "United States" includes the States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Canal Zone, and the Trust Territory of the Pacific Islands.

(o) "Vessel" includes every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on the waters of the United States.

(p) "Fecal coliform bacteria" are those organisms associated with the intestine of warm-blooded animals that are commonly used to indicate the presence of fecal material and the potential presence of organisms capable of causing human disease.

(q) "Type I marine sanitation device" means a device that, under the test conditions described in §§ 159.123 and 159.125, produces an effluent having a fecal coliform bacteria count not greater than 1,000 per 100 milliliters and no visible floating solids.

(r) "Type II marine sanitation device" means a device that, under the test conditions described in §§ 159.126 and 159.126a, produces an effluent having a fecal coliform bacteria count not greater than 200 per 100 milliliters and suspended solids not greater than 150 milligrams per liter.

(s) "Type III marine sanitation de vice" means a device that is designed to prevent the overboard discharge of treated or untreated sewage or any waste derived from sewage.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975 as amended by CGD 75–213, 41 FR 15325, Apr. 12, 1976]

§ 159.5 Requirements for vessel manufacturers.

(a) On and after January 30, 1977, no manufacturer may manufacture for sale, offer for sale, or distribute for sale or resale any new vessel equipped with installed toilet facilities unless it is equipped with an operable Type I, II, or III device that has a label placed on it under § 159.16, or that is certified under § 159.12.

(b) After January 30, 1980, no manufacturer may manufacture for sale, or offer for sale, or distribute for sale or resale any new vessel equipped with installed toilet facilities unless it is equipped with—

(1) An operable Type II or III device that has a label placed on it under § 159.16 or that is certified under § 159.12; or

(2) An operable Type I device installed on the vessel before January 31, 1980, that has a label placed on it under § 159.16 or that is certified under § 159.12.

(c) After January 30, 1980, no manufacturer may sell, offer for sale, or distribute for sale or resale any existing vessel equipped with installed toilet facilities unless it is equipped with—

(1) An operable Type II or III device that has a label placed on it under § 159.16 or that is certified under § 159.12; or

(2) An operable Type I device installed on the vessel before January 31, 1978, that has a label placed on it under § 159.16 or that is certified under § 159.12.

[CGD 75–213, 41 FR 15325, Apr. 12, 1976]

§ 159.7 Requirements for vessel operators.

(a) On and after January 30, 1977, no person may operate any new vessel equipped with installed toilet facilities, unless it is equipped with an operable Type I, II or III device that has a label placed on it under § 159.16, or that is certified under § 159.12.

(b) After January 30, 1980, no person may operate any new vessel equipped with installed toilet facilities unless it is equipped with—

(1) An operable Type II or III device that has a label placed on it under § 159.16 or that is certified under § 159.12; or

(2) An operable Type I device installed on the vessel before January 31, 1980, that has a label placed on it under § 159.16 or that is certified under § 159.12;

(c) After January 30, 1980, no person may operate any existing vessel equipped with installed toilet facilities unless it is equipped with—

(1) An operable Type II or III device that has a label placed on it under § 159.16 or that is certified under § 159.12; or

(2) An operable Type I device installed on the vessel before January 31, 1978, that has a label placed on it under § 159.16 or that is certified under § 159.12.

NOTE: The EPA standards state that in freshwater lakes, freshwater reservoirs or other freshwater impoundments whose inlets or outlets are such as to prevent the ingress or egress by vessel traffic subject to this regulation, or in rivers not capable of navigation by interstate vessel traffic subject to this regulation, marine sanitation devices certified by the U.S. Coast Guard installed on all vessels shall be designed and operated to prevent the overboard discharge of sewage, treated or untreated, or of any waste derived from sewage. The EPA standards further state that this shall not be construed to prohibit the carriage of Coast Guard-certified flow-through treatment devices which have been secured so as to prevent such discharges. They also state that waters where a Coast Guard-certified marine sanitation device permitting discharge is allowed include coastal waters and estuaries, the Great Lakes and interconnected waterways, freshwater lakes and impoundments accessible through locks, and other flowing waters that are navigable interstate by vessels subject to this regulation (40 CFR 140.3).

[CGD 75-213, 41 FR 15325, Apr. 12, 1976]

Subpart B—Certification Procedures

§ 159.11 Purpose.

This subpart prescribes procedures for certification of marine sanitation devices and authorization for labels on certified devices.

§ 159.12 Regulations for certification of existing devices.

(a) The purpose of this section is to provide regulations for certification of existing devices until manufacturers can design and manufacture devices that comply with this part and recognized facilities are prepared to perform the testing required by this part.

(b) Any Type III device that was installed on an existing vessel before January 30, 1975, is considered certified.

(c) Any person may apply to the Commandant (G-MMT/82), U.S. Coast Guard, Washington, D.C. 20590 for certification of a marine sanitation device manufactured before January 30, 1976. The Coast Guard will issue a letter certifying the device if the applicant shows that the device meets § 159.53 by:

(1) Evidence that the device meets state standards at least equal to the standards in § 159.53, or

(2) Test conducted under this part by a recognized laboratory, or

(3) Evidence that the device is substantially equivalent to a device certified under this section, or

(4) A Coast Guard field test if considered necessary by the Coast Guard.

(d) The Coast Guard will maintain and make available a list that identifies each device certified under this section.

(e) Devices certified under this section in compliance with § 159.53 need not meet the other regulations in this part and may not be labeled under § 159.16.

[CGD 73-83, 40 FR 4624, Jan. 30, 1975 as amended by CGD 75-213, 41 FR 15325, Apr. 12, 1976]

§ 159.13 [Reserved]

§ 159.14 Application for certification.

(a) Any manufacturer may apply to any recognized facility for certification of a marine sanitation device. The application for certification must indicate whether the device will be used aboard all vessels or only aboard uninspected vessels and to which standard in § 159.53 the manufacturer requests the device to be tested.

(b) An application may be in any format but must be in writing and must be signed by an authorized representative of the manufacturer and include or be accompanied by:

(1) A complete description of the manufacturer's production quality control and inspection methods, record keeping systems pertaining to the manufacture of marine sanitation devices, and testing procedures;

(2) The design for the device, including drawings, specifications and other information that describes the materials, construction and operation of the device;

(3) The installation, operation, and maintenance instructions for the device; and

(4) The name and address of the applicant and the manufacturing facility.

(c) The manufacturer must furnish the recognized facility one device of each model for which certification is requested and samples of each material from which the device is constructed, that must be tested destructively under § 159.117. The device furnished is for the testing required by this part except that, for devices that are not suited for unit testing, the manufacturer may submit the design so that the recognized facility may determine the components of the device and materials to be submitted for testing and the tests to be performed at a place other than the facility. The Coast Guard must review and accept all such determinations before testing is begun.

(d) At the time of submittal of an application to a recognized facility the manufacturer must notify the Coast Guard of the type and model of the device, the name of the recognized facility to which application is being made, and the name and address of the manufacturer, and submit a signed statement of the times when the manufacturer will permit designated officers and employees of the Coast Guard to have access to the manufacturer's facilities and all records required by this part.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975 as amended by CGD 75–213, 41 FR 15325, Apr. 12, 1976]

§ 159.15 Certification.

(a) The recognized facility must evaluate the information that is submitted by the manufacturer in accordance with § 159.14(b) (1), (2), and (3), evaluate the device for compliance with § 159.53 through § 159.95, test the device in accordance with § 159.101 and submit to the Commandant (G–MMT/82), U.S. Coast Guard, Washington, D.C. 20590 the following:

(1) The information that is required under § 159.14(b);

(2) A report on compliance evaluation;

(3) A description of each test;

(4) Test results; and

(5) A statement, that is signed by the person in charge of testing, that the test results are accurate and complete.

(b) The Coast Guard certifies a test device, on the design of the device, if it determines, after consideration of the information that is required under paragraph (a) of this section, that the device meets the requirements in Subpart C of this part.

(c) The Coast Guard notifies the manufacturer and recognized facility of its determination under paragraph (b) of this section. If the device is certified, the Coast Guard includes a certification number for the device. If certification is denied, the Coast Guard notifies the manufacturer and recognized facility of the requirements of this part that are not met. The manufacturer may appeal a denial to the Commandant (G–MMT/82), U.S. Coast Guard, Washington, D.C. 20590.

(d) If upon re-examination of the test device, the Coast Guard determines that the device does not in fact comply with the requirements of Subpart C of this part, it may terminate the certification.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975; CGD 75–213, 41 FR 15325, Apr. 12, 1976]

§ 159.16 Authorization to label devices.

(a) When a test device is certified under § 159.15(b), the Coast Guard will issue a letter that authorizes the manufacturer to label each device that he manufactures with the manufacturer's certification that the device is in all material respects substantially the same as a test device certified by the U.S. Coast Guard pursuant to section 312 of the Federal Water Pollution Control Act Amendments of 1972.

(b) Certification placed on a device by its manufacturer under this section is the certification required by section 312(h)(4) of the Federal Water Pollution Control Act Amendments of 1972, which makes it unlawful for a vessel that is subject to the standards and regulations promulgated under the Act to operate on the navigable waters of the

United States, if such vessel is not equipped with an operable marine sanitation device certified pursuant to section 312 of the Act.

(c) Letters of authorization issued under this section are valid for 5 years, unless sooner suspended, withdrawn, or terminated and may be reissued upon written request of the manufacturer to whom the letter was issued.

(d) The Coast Guard, in accordance with the procedure in 46 CFR 2.75, may suspend, withdraw, or terminate any letter of authorization issued under this section if the Coast Guard finds that the manufacturer is engaged in the manufacture of devices labeled under this part that are not in all material respects substantially the same as a test device certified pursuant to this part.

§ 159.17 Changes to certified devices.

(a) The manufacturer of a device that is certified under this part shall notify the Commandant (G-MMT/82), U.S. Coast Guard, Washington, D.C. 20590 in writing of any change in the design of the device.

(b) A manufacturer shall include with a notice under paragraph (a) of this section a description of the change, its advantages, and the recommendation of the recognized facility as to whether the device remains in all material respects substantially the same as the original test device.

(c) After notice under paragraph (a) of this section, the Coast Guard notifies the manufacturer and the recognized facility in writing of any tests that must be made for certification of the device or for any change in the letter of authorization. The manufacturer may appeal this determination to the Commandant (G-MMT/82), U.S. Coast Guard, Washington, D.C. 20590.

§ 159.19 Testing equivalency.

(a) If a test required by this part may not be practicable or necessary, a manufacturer may apply to the Commandant (G-MMT/82), U.S. Coast Guard, Washington, D.C. 20590 for deletion or approval of an alternative test as equivalent to the test requirements in this part. The application must include the manufacturer's justification for deletion or the alternative test and any alternative test data.

(b) The Coast Guard notifies the manufacturer of its determination under paragraph (a) of this section and that determination is final.

Subpart C—Design, Construction, and Testing

§ 159.51 Purpose and scope.

(a) This subpart prescribes regulations governing the design and construction of marine sanitation devices.

(b) Unless otherwise authorized by the Coast Guard each device for which certification under this part is requested must meet the requirements of this subpart.

§ 159.53 General requirements.

A device must:

(a) Under the test conditions described in §§ 159.123 and 159.125, produce an effluent having a fecal coliform bacteria count not greater than 1,000 per 100 milliliters and no visible floating solids (Type I),

(b) Under the test conditions described in §§ 159.126 and 159.126a, produce an effluent having a fecal coliform bacteria count not greater than 200 per 100 milliliters and suspended solids not greater than 150 milligrams per liter (Type II), or

(c) Be designed to prevent the overboard discharge of treated or untreated sewage or any waste derived from sewage (Type III).

[CGD 73-83, 40 FR 4624, Jan. 30, 1975; as amended by CGD 75-213, 41 FR 15325, Apr. 12, 1976]

§ 159.55 Identification.

(a) Each production device must be legibly marked in accordance with paragraph (b) of this section with the following information:

(1) The name of the manufacturer.

(2) The name and model number of the device.

(3) The month and year of completion of manufacture.

(4) Serial number.

(5) Whether the device is certified for use on an inspected or an uninspected vessel.

(6) Whether the device is Type I, II, or III.

(b) The information required by paragraph (a) of this section must appear on a nameplate attached to the device or in lettering on the device. The nameplate or lettering stamped on the device must be capable of withstanding without loss of legibility the combined effects of normal wear and tear and exposure to water, salt

spray, direct sunlight, heat, cold, and any substance listed in § 159.117 (b) and (c). The nameplate and lettering must be designed to resist efforts to remove them from the device or efforts to alter the information stamped on the nameplate or the device without leaving some obvious evidence of the attempted removal or alteration.

[CGD 73-83, 40 FR 4624, Jan. 30, 1975; as amended by CGD 75-213, 41 FR 15325, Apr. 12, 1976]

§ 159.57 Installation, operation, and maintenance instructions.

(a) The instructions supplied by the manufacturer must contain directions for each of the following:

(1) Installation of the device in a manner that will permit ready access to all parts of the device requiring routine service and that will provide any flue clearance necessary for fire safety.

(2) Safe operation and servicing of the device so that any discharge meets the applicable requirements of § 159.53.

(3) Cleaning, winter layup, and ash or sludge removal.

(4) Installation of a vent or flue pipe.

(5) The type and quantity of chemicals that are required to operate the device, including instructions on the proper handling, storage and use of these chemicals.

(6) Recommended methods of making required plumbing and electrical connections including fuel connections and supply circuit overcurrent protection.

(b) The instructions supplied by the manufacturer must include the following information:

(1) The name of the manufacturer.

(2) The name and model number of the device.

(3) Whether the device is certified for use on an inspected, or uninspected vessel.

(4) A complete parts list.

(5) A schematic diagram showing the relative location of each part.

(6) A wiring diagram.

(7) A description of the service that may be performed by the user without coming into contact with sewage or chemicals.

(8) Average and peak capacity of the device for the flow rate, volume, or number of persons that the device is capable of serving and the period of time the device is rated to operate at peak capacity.

(9) The power requirements, including voltage and current.

(10) The type and quantity of fuel required.

(11) The duration of the operating cycle for unitized incinerating devices.

(12) The maximum angles of pitch and roll at which the device operates in accordance with the applicable requirements of § 159.53.

(13) Whether the device is designed to operate in salt, fresh, or brackish water.

(14) The maximum hydrostatic pressure at which a pressurized sewage retention tank meets the requirements of § 159.111.

(15) The maximum operating level of liquid retention components.

(16) Whether the device is Type I, II, or III.

(17) A statement as follows:

NOTE: The EPA standards state that in freshwater lakes, freshwater reservoirs or other freshwater impoundments whose inlets or outlets are such as to prevent the ingress or egress by vessel traffic subject to this regulation, or in rivers not capable of navigation by interstate vessel traffic subject to this regulation, marine sanitation devices certified by the U.S. Coast Guard installed on all vessels shall be designed and operated to prevent the overboard discharge of sewage, treated or untreated, or of any waste derived from sewage. The EPA standards further state that this shall not be construed to prohibit the carriage of Coast Guard-certified flow-through treatment devices which have been secured so as to prevent such discharges. They also state that waters where a Coast Guard-certified marine sanitation device permitting discharge is allowed include coastal waters and estuaries, the Great Lakes and interconnected waterways, freshwater lakes and impoundments accessible through locks, and other flowing waters that are navigable interstate by vessels subject to this regulation (40 CFR 140.3).

[CGD 73-83, 40 FR 4624, Jan. 30, 1975; as amended by CGD 75-213, 41 FR 15325, Apr. 12, 1976]

§ 159.59 Placard.

Each device must have a placard suitable for posting on which is printed the operating instructions, safety precautions, and warnings pertinent to the device. The size of the letters printed on the placard must be one-eighth of an inch or larger.

§ 159.61 Vents.

Vents must be designed and constructed to minimize clogging by either the contents of the tank or climactic conditions such as snow or ice.

§ 159.63 Access to parts.

Each part of the device that is required by the manufacturer's instructions to be serviced routinely must be readily accessible in the installed position of the device recommended by the manufacturer.

§ 159.65 Chemical level indicator.

The device must be equipped with one of the following:

(a) A means of indicating the amount in the device of any chemical that is necessary for its effective operation.

(b) A means of indicating when chemicals must be added for the proper continued operation of the device.

§ 159.67 Electrical component ratings.

Electrical components must have current and voltage ratings equal to or greater than the maximum load they may carry.

§ 159.69 Motor ratings.

Motors must be rated to operate at 50° C ambient temperature.

§ 159.71 Electrical controls and conductors.

Electrical controls and conductors must be installed in accordance with good marine practice. Wire must be copper and must be stranded. Electrical controls and conductors must be protected from exposure to chemicals and sewage.

§ 159.73 Conductors.

Current carrying conductors must be electrically insulated from non-current carrying metal parts.

§ 159.75 Overcurrent protection.

Overcurrent protection must be provided within the unit to protect subcomponents of the device if the manufacturer's recommended supply circuit overcurrent protection is not adequate for these subcomponents.

§ 159.79 Terminals.

Terminals must be solderless lugs with ring type or captive spade ends, must have provisions for being locked against movement from vibration, and must be marked for identification on the wiring diagram required in § 159.57. Terminal blocks must be nonabsorbent and securely mounted. Terminal blocks must be provided with barrier insulation that prevents contact between adjacent terminals or metal surfaces.

§ 159.81 Baffles.

Baffles in sewage retention tanks, if any, must have openings to allow liquid and vapor to flow freely across the top and bottom of the tank.

§ 159.83 Level indicator.

Each sewage retention device must have a means of indicating when the device is more than ¾ full by volume.

§ 159.85 Sewage removal.

The device must be designed for efficient removal of nearly all of the liquid and solids in the sewage retention tank.

§ 159.87 Removal fittings.

If sewage removal fittings or adapters are provided with the device, they must be of either 1½″ or 4″ nominal pipe size.

§ 159.89 Power interruption: Type I and II devices.

A discharge device must be designed so that a momentary loss of power during operation of the device does not allow a discharge that does not meet the requirements in § 159.53.

[CGD 73-83, 40 FR 4624, Jan. 30, 1975; as amended by CGD 75-213, 41 FR 15326 Apr. 12, 1976]

§ 159.93 Independent supporting.

The device must have provisions for supporting that are independent from connecting pipes.

§ 159.95 Safety.

(a) Each device must—

(1) Be free of design defects such as rough or sharp edges that may cause bodily injuries or that would allow toxic substances to escape to the interior of the vessel;

(2) Be vented or provided with a means to prevent an explosion or over pressurization as a result of an accumulation of gases; and

(3) Meet all other safety requirements of the regulations applicable to the type of vessel for which it is certified.

(b) A chemical that is specified or provided by the manufacturer for use in the operation of a device and is defined as a hazardous material in 46 CFR Part 146 must be certified by the procedures in 46 CFR Part 147.

(c) Current carrying components must be protected from accidental contact by

personnel operating or routinely servicing the device. All current carrying components must as a minimum be of drip-proof construction or be enclosed within a drip-proof compartment.

§ 159.97 Safety: inspected vessels.

The Commandant approves the design and construction of devices to be certified for installation and operation on board inspected vessels on the basis of tests and reports of inspection under the applicable marine engineering requirements in Subchapter F of Title 46, Code of Federal Regulations, and under the applicable electrical engineering requirements in Subchapter J of Title 46 Code of Federal Regulations.

[CGD 73-83, 40 FR 4624, Jan. 30, 1975; as amended by CGD 75-213, 41 FR 15326, Apr. 12, 1976]

§ 159.101 Testing: general.

Unless otherwise authorized by the Coast Guard, a recognized facility must perform each test described in §§ 159.103 through 159.131. The same device must be used for each test and tested in the order in which the tests are described. There must be no cracking, softening, deterioration, displacement, breakage, leakage or damage of components or materials that affects the operation or safety of the device after each test described in §§ 159.103 through 159.117 and § 159.121, and the device must remain operable after the test described in § 159.119. The device must be set up in a manner simulating installation on a vessel in accordance with the manufacturer's instructions with respect to mounting, water supply, and discharge fittings.

[CGD 73-83, 40 FR 4624, Jan. 30, 1975; as amended by CGD 75-213, 41 FR 15326, Apr. 12, 1976]

§ 159.103 Vibration test.

The device, with liquid retention components, if any, filled with water to one-half of their volume, must be subjected to a sinusoidal vibration for a period of 12 hours, 4 hours in each of the x, y, and z planes, at the resonant frequency of the device (or at 55 cycles per second if there is no resonant frequency between 10 to 60 hertz) and with a peak amplitude of 0.019 to 0.021 inches.

§ 159.105 Shock test.

The device, with liquid retention components, if any, filled with water to half of their volume, must be subjected to 1,000 vertical shocks that are ten times the force of gravity (10g) and have a duration of 20–25 milliseconds measured at the base of the half-sine shock envelope.

§ 159.107 Rolling test.

(a) The device, with liquid retention components, if any, filled with water to half of their volume, must be subjected to 100 cycles with the axis of rotation 4 feet from the centerline of the device, no more than 6 inches below the plane of the bottom of the device, and parallel to any tank baffles. The device must then be rotated 90 degrees on its vertical axis and subjected to another 100 cycles. This testing must be repeated with the liquid retention components filled to the maximum operating level as specified by the manufacturer in § 159.57.

(b) Eighty percent of the rolling action must be approximately 15 degrees on either side of the vertical and at a cyclic rate of 3 to 4 seconds. Twenty percent motions must be approximately 30 degrees, or the maximum angle specified by the manufacturer under § 159.57, whichever is greater, on either side of the vertical at a cyclic rate of 6 to 8 seconds.

§ 159.109 Pressure test.

Any sewage retention tank that is designed to operate under pressure must be pressurized hydrostatically at a pressure head of 7 feet or to 150 percent of the maximum pressure specified by the manufacturer for operation of the tank, whichever is greater. The tank must hold the water at this pressure for 1 hour with no evidence of leaking.

§ 159.111 Pressure and Vacuum Pulse test.

Liquid retention components of the device with manufacturer specified venting installed must be subjected to 50 fillings of water at a pressure head of 7 feet or the maximum pressure specified by the manufacturer for operation of the device, whichever is greater, and then emptied with a 45 gallon per minute or larger positive displacement pump that remains in operation 30 seconds after emptying the tank at the end of each cycle.

§ 159.115 Temperature range test.

(a) The device must be held at a temperature of 60° C or higher for a period of 16 hours.

(b) The device must be held at a temperature of —40° C or less for a period of 16 hours following winterization in accordance with manufacturers' instructions.

§ 159.117 Chemical resistance test.

(a) In each case where the recognized facility doubts the ability of a material to withstand exposure to the substances listed in paragraphs (b) and (c) of this section a sample of the material must be tested.

(b) A sample referred to in paragraph (a) of this section must be partially submerged in each of the following substances for 100 hours at an ambient temperature of 22° C.

(1) Sewage.

(2) Any disinfectant that is required in the operation of the device.

(3) Any chemical compound in solid, liquid or gaseous form, used, emitted or produced in the operation of the device.

(4) Fresh or salt (3.5 percent Sodium Chloride) flush water.

(5) Toilet bowl cleaners.

(6) Engine Oil (SAE # 30).

(7) Ethylene Glycol.

(8) Detergents (household and bilge cleaning type).

(c) A sample of the material must be doused 20 times, with a 1 hour drying period between dousings, in each of the following substances:

(1) Gasoline.

(2) Diesel fuel.

(3) Mineral spirits.

(4) Turpentine.

(5) Methyl alcohol.

§ 159.119 Operability test; temperature range.

The device must operate in an ambient temperature of 5° C with inlet operating fluid temperature varying from 2° C to 32° C and in an ambient temperature of 50° C with inlet operating fluid temperature varying from 2° C to 32° C.

§ 159.121 Sewage processing test.

(a) The device must process human sewage in the manner for which it is designed when tested in accordance with this section. There must be no sewage or sewage-treating chemicals remaining on surfaces or in crevices that could come in contact with a person using the device or servicing the device in accordance with the instructions supplied under § 159.57(b)(7).

(b) During the test the device must be operated and maintained in accordance with the manufacturer's instructions. Any initial start-up time specified by the manufacturer must be allowed before tests periods begin. For 1 hour of each 8-hour test period, the device must be tilted to the maximum angles specified by the manufacturer under §§ 159.55 and 159.57.

(c) Except for devices described in paragraph (d) of this section, the devices must process and discharge or store human sewage over at least an 8-consecutive hour period on at least 10 days within a 20-day period. The device must receive human sewage consisting of fecal matter, urine, and toilet paper in a ratio of four urinations to one defecation with at least one defecation per person per day. Devices must be tested at their average rate of capacity as specified in § 159.57. In addition, during three periods of each day the system must process sewage at the peak capacity for the period of time it is rated at peak capacity.

(d) A device that processes and discharges continuously between individual use periods or a large device, as determined by the Coast Guard, must process and discharge sewage over at least 10-consecutive days at the average daily capacity specified by the manufacturer. During three periods of each day the system must process sewage at the peak capacity for the period of time it is rated at peak capacity. The sewage for this test must be fresh, domestic sewage to which primary sludge has been added, as necessary, to create a test sewage with a minimum of 500 miligrams of suspended solids per liter.

§ 159.123 Coliform test: Type I devices.

(a) The arithmetic mean of the fecal coliform bacteria in 38 of 40 samples of effluent discharged from a Type I device during the test described in § 159.121 must be less than 1000 per 100 milliliters when tested in accordance with 40 CFR, Part 136.

(b) The 40 samples must be taken from the device as follows: During each of the 10-test days, one sample must be taken at the beginning, middle, and end of an 8-consecutive hour period with one additional sample taken immediately

following the peak capacity processing period.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975; as amended by CGD 75–213, 41 FR 15326, Apr. 12, 1976]

§ 159.125 Visible floating solids: Type I devices.

During the sewage processing test (§ 159.121) 40 effluent samples of approximately 1 liter each shall be taken from a Type I device at the same time as samples taken in § 159.123 and passed expeditiously through a U.S. Sieve No. 12 as specified in ASTM E–11–70. The weight of the material retained on the screen after it has been dried to a constant weight in an oven at 103° C. must be divided by the volume of the sample and expressed as milligrams per liter. This value must be 10 percent or less of the total suspended solids as determined in accordance with 40 CFR, Part 136 of at least 38 of the 40 samples.

NOTE: 33 U.S.C. 1321(b)(3) prohibits discharge of harmful quantities of oil into or upon the navigable waters of the United States or adjoining shorelines or into or upon the waters of the contiguous zone. Under 40 CFR 110.3 and 110.4 such discharges of oil include discharges which:

(a) Violate applicable water quality standards, or

(b) Cause a film or sheen upon or discoloration of the surface of the water or adjoining shorelines or cause a sludge or emulsion to be deposited beneath the surface of the water or upon adjoining shorelines. If a sample contains a quantity of oil determined to be harmful, the Coast Guard will not certify the device.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975; as amended by CGD 75–213, 41 FR 15326, Apr. 12, 1976]

§ 159.126 Coliform test: Type II devices.

(a) The arithmetic mean of the fecal coliform bacteria in 38 of 40 samples of effluent from a Type II device during the test described in § 159.121 must be 200 per 100 milliliters or less when tested in accordance with 40 CFR, Part 136.

(b) The 40 samples must be taken from the device as follows: During each of the 10 test days, one sample must be taken at the beginning, middle and end of an 8-consecutive hour period with one additional sample taken immediately following the peak capacity processing period.

[CGD 75–213, 41 FR 15326, Apr. 12, 1976]

§ 159.126a Suspended Solids Test: Type II devices.

During the sewage processing test (§ 159.121) 40 effluent samples must be taken at the same time as samples are taken for § 159.126 and they must be analyzed for total suspended solids in accordance with 40 CFR, Part 136. The arithmetic mean of the total suspended solids in 38 of 40 of these samples must be less than or equal to 150 milligrams per liter.

[CGD 75–213, 41 FR 15326, Apr. 12, 1976]

§ 159.127 Safety Coliform count: recirculating devices.

Thirty-eight of forty samples of flush fluid from a recirculating device must have less than 240 fecal coliform bacteria per 100 milliliters. These samples must be collected in accordance with § 159.123(b) and tested in accordance with 40 CFR Part 136.

[CGD 73–83, 40 FR 4624, Jan. 30, 1975; as amended by CGD 75–213, 41 FR 15326, Apr. 12, 1976]

§ 159.129 Safety: Ignition prevention test.

(a) Components of a device that are a potential ignition source in an explosive atmosphere must pass the test in paragraph (b) or (c) of this section or meet the requirements of paragraph (d) or have a specific warning in the instruction manual required by § 159.57 that the device should not be installed in an explosive atmosphere.

(b) Components protected by vapor exclusion must be placed in a chamber filled with a rich mixture of gasoline or propane in air with the pressure being varied from 0 to 2 psig once an hour for 8 hours. Vapor readings must be taken in the void being protected and must indicate a leakage less than 20 percent of the lower explosive limit of the mixture in the chamber.

(c) Components providing ignition protection by means other than vapor exclusion must be fitted with an ignition source, such as a spark plug, and a means of injecting an explosive mixture of gasoline or propane and air into the void that protects the component. Connections must be made so as to minimize any additional volume added to the protected void by the apparatus delivering the explosive mixture. The component must be placed in a chamber filled with an explosive mixture and there must be

no ignition of the explosive mixture surrounding the component when the following tests are conducted:

(1) Using any overload protection that is part of the device, the potential ignition source must be operated for one half hour at 110 percent of its rated voltage, one half hour at 50 percent of its rated voltage and one half hour at 100 percent of its rated voltage with the motor or armature locked, if the potential ignition source is a motor or part of a motor's electrical circuit.

(2) With the explosive mixture in the protected void, the test installed ignition source must be activated 50 times.

(3) The tests (1) and (2) must be repeated with any plugs removed.

(d) Components that are certified as being intrinsically safe in accordance with the Instrument Society of American (RP 12.2) or explosion proof in accordance with the Underwriters Laboratories STD 698 in Class I, Group D hazardous locations (46 CFR 111.80–5(a)) need not be subjected to this testing.

§ 159.131 Safety: Incinerating device.

An incinerating device must not incinerate unless the combustion chamber is closed, must purge the combustion chamber of combustible fuel vapors before and after incineration must secure automatically if the burner does not ignite, must not allow an accumulation of fuel, and must neither produce a temperature on surfaces adjacent to the incineration chamber higher than 67° C nor produce a temperature on surfaces in normal body contact higher than 41° C when operating in an ambient temperature of 25° C. Unitized incineration devices must completely burn to a dry, inert ash, a simultaneous defecation and urination and must not discharge fly ash, malodors, or toxic substances.

Subpart D—Recognition of Facilities

§ 159.201 Application.

(a) To apply for listing as a recognized facility under this part, a facility must apply to the Commandant (G–MMT/82), U.S. Coast Guard Headquarters, Washington, D.C. 20590 and include:

(1) Name and address;

(2) A description of the applicant's capability to perform the tests and evaluations that are required by this part, including information on personnel qualifications, equipment, materials, and facilities; and

(3) A signed statement that the Coast Guard may inspect the facility to verify its qualification and inspect the records on certification of marine sanitation devices.

(b) An applicant under paragraph (a) of this section must submit any other information the Coast Guard requests for the determination of the facility's qualification as a recognized facility.

§ 159.205 Criteria for recognition.

To qualify for and retain recognition as a recognized facility, a facility must meet the criteria in this section.

(a) The facility must maintain an organization chart that shows the personnel structure and the relationship between administration, operation, and quality control for the testing of marine sanitation devices.

(b) The facility must maintain a quality control program and a quality control manual that describes that program and the responsibilities of personnel for the testing of marine sanitation devices, including:

(1) Receiving, handling, and shipping procedures;

(2) Test procedures;

(3) The calibration system;

(4) The test report system;

(5) Certification procedures and standards;

(6) The record and filing system; and

(7) The standards and filing system for subcontracts.

(c) The facility must maintain a master file that contains the Coast Guard standards, reference standards, and the facility's test standards that apply to the testing of marine sanitation devices.

(d) The facility must maintain the shipping and receiving information for each device, including—

(1) The date of receipt;

(2) The name of the manufacturer;

(3) The type of device;

(4) A record of the visible condition of the device upon receipt; and

(5) Any other information that is necessary to accurately record and positively identify each device that is received.

(e) The facility must follow written procedures for tests of devices. These written procedures must be available for examination upon the request of the Coast Guard.

(f) The facility must maintain data sheets and test equipment lists for all inspections and tests of devices. These must be in sufficient detail for complete verification and evaluation of the operations and objectives, including:

(1) The date and name of the test, the name of the supervising engineer, the manufacturer and description of the test device;

(2) A detailed explanation of the results of each phase of tests and any unusual occurrences; and

(3) The signature of the technician who performs each test.

(g) The facility must maintain a list of the test equipment that it uses and the date of the last calibration of that equipment.

(h) The facility must maintain and document a calibration program and ensure the degree of accuracy as follows:

(1) The accuracy of all measurement instrument standards must be traceable to the primary standards of the National Bureau of Standards. This traceability may be through reference standards that are certified for accuracy and stability by the National Bureau of Standards.

(2) The normal accuracy of the reference standard must be at least four times as great as that of the facility's instrument that is being calibrated. All equipment must be calibrated at least once a year or in accordance with the recommended schedule of the instrument manufacturer of the National Bureau of Standards.

(3) The facility must maintain documentation of the calibration standards and test equipment.

(4) If the facility performs its own calibration, it must maintain written calibration procedures, maintenance information, a record of the values that are recorded during calibration, and the standards and equipment that are used for the calibration.

(5) If the facility does not perform its own calibration, it is responsible for the accuracy of the calibrations.

(i) The facility must have no conflict of interest. The Coast Guard's determination on the conflict of interest questions is final. Except as provided in paragraph (j) of this section, conflict of interest is defined as follows:

(1) The loss or award of a specific contract to test marine sanitation devices is not a substantial factor for the financial well being of the facility;

(2) The facility's personnel are free of the influence or control of manufacturers, suppliers, or vendors; and

(3) The facility is not involved in the promotion of a marine sanitation device.

(j) If the uniqueness or size of a device requires testing by a facility that may not meet all the criteria for conflict of interest in paragraph (i) of this section, a manufacturer may apply to the Commandant (G-MMT/82), U.S. Coast Guard Washington, D.C. 20590 to allow the facility to conduct the tests.

(k) If a recognized facility subcontracts for any testing, it must apply to the Commandant (G-MMT/82), U.S. Coast Guard, Washington, D.C. 20590 for authorization and include the justification for the subcontracting. The recognized facility is responsible for the accuracy and completeness of all tests by a subcontractor.

INDEX

A

Accident or casualty report ..... Subpart 35.15
Accident report when state of war exists 35.15–10
Accommodations for crew ..... Subpart 32.40
Aids to navigation:
  Casualty or accident involving 35.15–1
  Charts or information regarding 35.20–1
Alarm bells 32.15–1
  Marking required 35.40–5
  Switches, marking of 35.40–1
Alarm systems ..... Subpart 32.25
Alcohol or drugs, used by crew 35.05–25
Alterations and repairs, regulations governing 30.01–10, 31.10–25
American Bureau of Shipping 31.10–1
Anchors for seagoing barges 32.15–15
Annual inspection:
  Application for 31.01–15
  Cargo tanks for poisonous liquids 39.25–1
  Fire extinguishers 31.10–18
  Hydrostatic test of cargo tanks 38.25–1, 39.25–1
  Liquefied flammable gas cargo tanks 38.25–1
Anode installations, sacrificial 35.01–25
Appeal, right of 30.20–50
Application for inspection 30.01–15, 31.01–20
Application, electrical installations 32.45–1
Application of regulations:
  General 30.01–5
  Governing alterations and repairs 30.01–10
  Nuclear energy 30.01–25
  Vessels on an international voyage 30.01–6
Approved, definition 30.10–3
Arresters, flame 30.10–23, 32.20–10
Asignment of functions 30.01–3
Authority of marine inspector 31.01–10
Auxiliary machinery:
  Design 32.35–1
  Construction 32.35–1
  Installation of internal combustion engines 32.35–5
Axes, fire 34.05–20, 34.60

B

Bailer, lifeboat equipment 33.15–10
Batteries, storage, location of 32.45–5
Bell, alarm 32.25–1
Bell signals 32.30–5
Bells, fog sound signal devices 32.15–1
Bilge injection valves 31.10–20
Bilge pump, lifeboat equipment 33.15–1
Bilge systems ..... Subpart 32.52
Bills of lading required 35.01–10
Boathook, lifeboat equipment 33.15–1, 33.15–5, 33.15–10, 33.15–15
Boathook, life raft equipment 33.15–20
Boilerroom, fire extinguishing systems for 34.05–5

Boilers:
Accident report by chief engineer ---- 35.15–5
Examination by engineer ---- 35.25–1
Safety rules for fires ---- 35.30–5
Breeches buoy, poster containing instruction regarding use of ---- Subpart 35.12
Breathing apparatus, fresh air ---- 35.30–20, 35.40–20
Bucket, lifeboat equipment ---- 33.15–1, 33.15–5, 33.15–10
Buoyant apparatus ---- 33.05–25, 33.25–20
Butterworth plates, safety rules regarding ---- 35.30–10

C

Carbon dioxide extinguishing systems:
Alarms ---- 34.15–30
Amount of carbon dioxide required ---- 34.15–5
Application ---- 34.15–1
Controls ---- 34.15–10
Discharge outlets ---- 34.15–25
Dry cargo spaces ---- 34.15–5
Enclosed ventilation systems for rotating electrical propulsion equipment ---- 34.15–5
Enclosure openings ---- 34.15–35
Installations contracted for prior to January 1, 1962 ---- 34.15–90
Machinery spaces pumprooms paint lockers and similar spaces ---- 34.15–5
Piping ---- 34.15–15
Pressure relief ---- 34.15–40
Quantity, pipe sizes, and discharge rates ---- 34.15–5
Storage ---- 34.15–20
Total available supply ---- 34.15–5
Cargo, definition ---- 30.10–5
Cargo discharge ---- 32.50–3, 39.15–5
Cargoes, elevated temperatures ---- Part 36
Cargoes regulated ---- Subpart 30.25
Cargo gear certificates or registers ---- 31.10–16, Subpart 31.27
Cargo gear inspection ---- 31.10–16, 31.37
Cargo handling:
Equipment maintenance ---- 35.35–70
Liquefied petroleum gases ---- Subpart 38.15
Poisonous liquids ---- 39.15–1
Safety requirements ---- 35.30
Unmanned tank barges ---- 35.35–1
Cargo handling room, definitions ---- 30.10–6
Cargo hose ---- 32.50, 35.35–15, 35.35–70, 38.15–5
Cargo piping ---- Subpart 32.50, 40.15–1
Cargo pumps ---- Subpart 32.50
Cargo pump relief valves ---- 36.10–1
Cargo pump, testing of ---- 35.35–70
Cargo tank hatches, ullage holes and Butterworth plates, safety rules regarding ---- 35.30–10
Cargo tanks:
Construction and testing of ---- 32.60–40, 32.65–40
Design and installation of ---- 38.05, 39.05
Electric bonding and grounding of ---- 32.75–15
Filling densities ---- 38.15–1
Fire extinguishing systems for ---- 34.05–5
Hydrostatic test of ---- 38.25–1, 39.25–1
Installation for carrying liquids at elevated temperatures ---- 36.05–1
Installation for combustible poisonous liquids ---- 39.05–10
Independent ---- 32.60–30, 32.65–30, 32.70–25, 32.75–10
Lagging ---- 38.05–20
Liquid level gaging devices ---- 38.10–20, 39.10–15
Liquefied petroleum gases ---- Part 38
Marking of ---- 38.05–5

Cargo tanks—Continued
Marking of, for poisonous liquids 39.05–5
Periodic test 38.25–1, 39.25–1
Piping 38.10–10
Poisonous liquids ..... Part 39
Refrigerating system used with 38.05–25
Removal from service 38.25–5, 39.25–5
Venting of ..... Subparts 32.55, 38.20–1, 38.20–5, 39–20–1
Cargo transfer:
Approval of 35.35–25
Conditions affecting 35.35–40
Connecting of cargo hose 35.35–15
Declaration of inspection 35.35–30
Duties of senior deck officer 35.35–35
Electric bonding 35.35–5
Filling densities 38.15–1
Handling of packaged goods, etc 35.35–55
Inspection prior to 35.35–20
Liquefied flammable gases 38.15–5
Maintenance of equipment 35.35–70
Men on duty 35.35–1
Tank barges 35.35–60
Termination of 35.35–50
Towing vessels furnishing steam, air or electricity 35.35–45
Vessels coming alongside during 35.35–42
Vinyl chloride 40.18–1
Carriage of person other than crew 35.01–15
Casualty or accident report ..... Subpart 35.15
Casualty report when state of war exists 35.15–10
Certificate of class 31.10–5
Certificate of inspection:
Application for 31.01–15, 31.01–20
Cargoes of elevated temperatures, carriage of 36.01–5
Delivery of 31.05–1
Endorsed for liquefied flammable gas 38.01–5
Endorsed for poisonous liquids 39.01–5
Indication of water traveled on 31.20–1
Ocean or unlimited coastwise vessels on inland and Great Lakes Routes—TB/OC 30.01–7
Posting of 31.05–5
Terms, endorsements 31.05–15
Certificated crewmembers 31.15–1
Certificated, definition 30.10–7
Certificates regarding shipboard cargo gear 31.10–16, 31.37
Certificates under International Convention for Safetey of Life at Sea, 1960:
American Bureau of Shipping 31.40–45
Application 31.40–1
Cargo Ship Safety Construction Certificate 31.40–5
Cargo Ship Safety Equipment Certificate 31.40–10
Cargo Ship Safety Radiotelegraphy Certificate 31.40–15
Cargo Ship Safety Radiotelephony Certificates 31.40–20
Duration of Convention Certificate 31.40–40
Exemption Certificate 31.40–25
Nuclear Cargo Ship Safety Certificate 31.40–30
Posting of Convention Certificates 31.40–35
Charts of navigable waters required 35.20–1
Chief Engineer:
Accident report 35.15–5
Repairs of boilers and unfired pressure vessels and reports or accidents 35.25–5
Class, certificate of 31.10–5
Classification requirements, definition 30.10–9
CO_2 fire apparatus, marking required 35.40–10
Coast Guard District Commander 30.10–19
Coastwise, definition 30.10–11

Cofferdam:
Definition of 30.10–13
Location of 32.60–10, 32.65–15, 32.70–10
Requirements of 32.70–10
Venting of 32.55–45
Combustible gas indicator 35.30–15
Combustible liquids, definition 30.10–15
Combustible liquids having lethal characteristics ..... Part 39
Commandant, definition 30.10–17
Commodities regulated ..... Subpart 30.25
Communication, interior system ..... Subpart 32.30
Compass, lifeboat equipment 33.15–1, 33.15–5
Construction and testing of cargo tanks and bulkheads on tank vessels 32.65–40
Construction of tank barges of materials other than steel or iron, requirements 32.80–1
Construction of tank vessels:
Cargo spaces segregated from cargo tanks 32.57–10, 32.60–15
Ceilings 32.57–10
Deck 32.57–10
Enclosed spaces 32.60–10
General cargo spaces 32.60–15
Hatch covers 32.57–10
Hull requirements 32.60, 32.65, 32.70, 32.75
Living quarters 32.60–25, 32.65–25
Lamp Lockers 32.57–10
Location of cargo tank spaces 32.60–10
Location of independent tanks 32.60–30
Machinery 32.35–1
Paint lockers 32.57–10
Requirements for scantlings, material and workmanship 32.60–1, 32.65–1, 32.70–5, 32.75–5
Segregation of cargo 32.60–10
Stowage spaces 32.60–10
Subdivision of cargo space 32.60–5, 32.65–10
Testing of cargo tanks and bulkheads 32.60–40, 32.65–40. 32.70–25, 32.75–10
Construction of vessels for liquefied gases 38.05–1
Construction of wood hull tank vessels:
Application of regulations 32.75–1
Electric bonding and grounding of cargo tanks 32.75–15
Hold spaces 32.75–20
Independent cargo tanks 32.75–10
Convention certificates ..... Subpart 31.40
Conversion of vessels to tank vessels 31.10–10
Crew accommodations:
Inspection of 31.10–45
Requirements for ..... Subpart 32.40
Sanitary condition of 35.01–5
Crew:
Certificated members of 31.15–1
Illness of 35.05–25
Licensed officers 31.15–1
Physical condition of 35.05–20
Required for cargo handling 35.35–1

D

Davits, lifeboat 33.10–1, 33.20–1
Deck foam system ..... Subpart 34.20
Declaration of inspection prior to bulk cargo transfer 35.35–30
Definition of terms ..... Subpart 30.10
Delivery of certificate of inspection 31.05–1
Design:
Cargo tanks 38.05–2, 39.05–1
Main and auxiliary machinery 32.35–1
Devices, spark producing 35.30–35

Display of Plans 35.10–3
Distress signals 33.01–35, 33.15–1, 33.15–5, 33.15–20, 33.45
Ditty bag, lifeboat equipment 33.15–1
Draft marks 32.05–1, 35.20–5
Drills:
  Boat 35.10–5
  Fire 35.10–5
  Line-throwing appliance 35.10–1
Drinking cups, lifeboat equipment 33.15–1
Drinking water, lifeboat equipment 33.15–1
Drydock or hauling out 31.10–20

E

Effective date of regulations 30.01–15
Electric bonding and grounding 32.75–15, 35.35–5
Electrical installations 31.35, 32.45
Electric power-operated lifeboat winches 35.10–7
Elevated temperature cargoes:
  Cargo pump relief valves 36.10–1
  Certificate of inspection 36.01–5
  Flame screens, vents and ventilations 36.20–1
  Installation of cargo tanks 36.05–1
  Lagged tanks, periodic inspections 36.30–1
  Protection of personnel 36.05–10
  Scope of regulations 36.01–1
  Ventilation of pumproom 36.20–5
Emergency:
  Authority of senior officer 35.35–75
  Breathing equipment, marking of 35.40–20
  Lighting and power systems 35.10–15
  Outfit 35.30–20
  Position indicating radiobeacon ..... Subparts 33.60, 35.10–25
  Repairs to firefighting equipment 35.01–35
  Signals 35.10–5
Enclosed ventilating system, fire extinguishing system for 34.05–5
Enforcement 30.20–1
Engineering, marine ..... Subpart 31.30
Engineering, electrical 31.35, 32.45
EPIRB ..... Subparts 33.60, 35.10–25
Equipment:
  Blocks and falls for lifeboats 33.10–10
  Cargo handling ..... Subpart 32.50
  Davits 33.10–1
  Disengaging apparatus 33.10–15, 33.10–20
  Emergency 35.30–20
  Fire and emergency, vessel's name on 35.40–40
  Inflatable liferafts 33.15–16
  Installed but not required 34.01–5
  Lifeboat, liferaft, buoyant apparatus ..... Subpart 33.15
  Line-throwing appliances 33.55–10, 33.55–15
  Mechanical means for lowering 33.10–5
  Portable electrical 35.30–30
  Previously approved 30.01–15
Equipment installations ..... Subpart 32.20
Equipment installations on vessels during World War II 32.20–1
Equipment, navigation ..... Subpart 32.15
Equivalents 30.15–1
Escape, means of 32.01–1
Examination of sea chests, sea valves, sea strainers, and bilge injection valves 31.10–20

Examination of tail shaft 61.15–15
Exemption certificate 31.40–25
Explosives, transportation of 35.30–25

F

Fire axes 34.05–20, 34.60
Fire axes, location of 34.60–10
Fire axes, number required 34.60–5
Fire drills 35.10–5
Fire extinguishers, portable and semiportable:
  Application 34.50–1
  Classification 34.50–5
  Location 34.50–10
Spare charges 34.50–15
  Vessels contracted for prior to January 1, 1962 ..... 34.50–90
Fire extinguishing deck foam system:
  Application 34.20–1
  Area protected 34.20–5
Cargo area definition 34.20–3
  Controls 34.20–10
  Discharge outlets 34.20–20
  Installations contracted for prior to January 1, 1970 ..... 34.20–90
  Marking 35.40–10
  Piping 34.20–15
  Quantity of foam required 34.20–5
  Rate of application 34.20–5
  Separate supply of foam-producing material 34.20–5
  Supply of foam-producing material 34.20–5
  Water supply 34.20–5
Fire extinguishing fixed foam systems:
  Additional protection required 34.17–25
  Application 34.17–1
  Area protected 34.17–5
  Controls 34.17–10
  Discharge outlets 34.17–20
  Installations contracted for prior to January 1, 1962 ..... 34.17–90
  Piping 34.17–15
  Quantity of foam required 34.17–5
  Rate of application 34.17–5
  Separate supply of foam-producing material 34.17–5
  Supply of foam-producing material 34.17–5
  Water supply for required pumps 34.17–5
Fire extinguishing systems:
  Boilerrooms 34.05–5
  Carbon dioxide 34.15
  Cargo tanks 34.05–5
  Dry cargo compartments 34.05–5
  Enclosed ventilating systems 34.05–5
  Foam, deck ..... Subpart 34.20
  Foam, fixed ..... Subpart 34.17
  Installations contracted for prior to January 1, 1962 ..... 34.10–90
  Internal combustion installations 34.05–5
  Lamp, paint lockers and similar spaces 34.05–5
  Machinery spaces 34.05–5
  Marking 35.40–10
  Piping 34.10–15
  Portable and semiportable extinguishers 34.05–10, 34.50
  Pumprooms 34.05–5
Fire extinguishing system, steam smothering:
  Application 34.13–1
  Installations contracted for prior to January 1, 1962 ..... 34.13–90
Firefighting equipment:
  Application 34.01–1
  Fire axes 34.05–20, 34.60

Firefighting equipment—Continued
Fire main system ---- 34.05–1
Hose ---- 34.10–10
Hose nozzles ---- 35.40–10
Hydrants ---- 35.40–15
Installed but not required ---- 34.01–5
Portable, vessel's name on ---- 35.40–40
Protection for unusual arrangements or special products ---- 34.01–10
Repairs and alterations ---- 35.01–35
Sand ---- 34.05–15, 34.55
Testing and inspection ---- 31.10–18, 31.10–19
Fire main system:
Application ---- 34.10–1
Fire pumps ---- 34.10–5
Fire station hydrants, hose and nozzles ---- 34.10–10
Fire, matches and smoking, safety rules ---- 35.30–5
Fire protection, structural, for tank vessels contracted for on or after January 1, 1963 ---- Subpart 32.57
Fire protection, structural for ships with a keel laying date on or after January 1, 1975 ---- Subpart 32.56
Fire station ---- 34.10–10
First aid kit ---- 33.15–1
Fittings and piping for liquefied petroleum gases ---- 38.10–10
Fittings, cargo ---- Subpart 32.50
Flame arresters ---- 30.10–23, 32.20–10
Flame screen ---- 30.10–25, 36.20–1
Flammable liquid, definition ---- 30.10–22
Flammable liquid and gas fuels as ships' stores ---- 35.30–40
Flammable or inflammable, definition ---- 30.10–21
Flashlight, lifeboat equipment ---- 33.15–1, 33.15–5, 33.15–10
Flashpoint, definition ---- 30.10–27
Foam hose/monitor stations ---- 35.40–17
Foam monitor capacity ---- 32.20–40
Fog sound signal devices ---- 32.15–1
Fresh air breathing apparatus ---- 35.30–20, 35.40–20
Fuel oil, requirements ---- 35.25–10
Fuels, flammable liquid and gas ---- 35.30–40
Functions, Assignment of ---- 30.01–3

G

Gage, liquid level ---- 32.20–20, 38.10–20, 39.10–15
Galley fires, safety rules ---- 35.30–5
Gangway signs ---- 35.30–1, 39.15–1
Gas chemist certified by American Bureau of Shipping ---- 35.01–1
Gas free, definition ---- 30.10–29
Gear, shipboard cargo, certificates or registeers ---- 31.10–16, 31.37
General alarm switch, marking of ---- 35.40–1
General alarm systems:
Alarm bells for tankships constructed on or after September 15, 1943 ---- 32.25–1
Alarm bells for tankships constructed prior to September 15, 1943 ---- 32.25–5
Alarm bells for manned barges ---- 32.25–10
General rules and regulations ---- 30.10–31
Grab lines ---- 33.15–1
Grade D, combustible liquid ---- 30.10–15
Grade E, combustible liquid ---- 30.10–15
Great Lakes ---- 30.10–33
Guards at dangerous places ---- 32.01–15

H

Hatchets, lifeboat equipment ---- 33.15–1, 33.15–5, 33.15–10
Hauling out or drydocking ---- 31.10–20
Hazardous materials incidents, notice and reports ---- 35.15–13
Headquarters ---- 30.10–35

Heaving lines 33.15–1, 33.15–10
Hospital accommodations 32.40–1
Hull and cargo tank requirements:
Alternative arrangements 32.63–8
Application 32.63–1
Barge hull classifications 32.63–5
Cargo tanks and supports 32.63–25
Hull structure 32.63–20
Rakes and coamings 32.63–10
Subdivision and stability 32.63–15
Hose, cargo 32.50–30
Hull requirements 32.60, 32.63, 32.65, 32.70, 32.75, 32.80
Hydraulic Release 33.20–20
Hydrostatic test for cargo tanks 38.25–1, 39.25–1

I

Illuminating oil, lifeboat equipment 33.15–1, 33.15–5, 33.15–10
Inclining test 31.10–30
Independent cargo tanks 32.60–30, 32.60–35, 32.65–30, 32.70–25, 32.75–10
Industrial trucks, power operated ..... Subpart 35.70
Inert gas system ..... Subpart 32.53
Inflatable liferafts substitution for other:
Barges 33.07–1
Embarkation aids 33.20–3
Lifeboats on certain tankships of 500 to 1,600 gross tons 33.07–15
Lifeboats on certain tankships of 1,600 to 3,000 gross tons 33.07–20
Lifeboats on certain tankships of 3,000 gross tons and upward 33.07–25
Lifeboats on tankships under 500 gross tons 33.07–10
Liferafts, lifefloats and buoyant apparatus 33.07–5
Required equipment for 33.15–16
Inspection:
Alterations and repairs 31.10–25
Application for 30.01–15, 30.01–20
Bilges 31.10–50
Certificate of ..... Subpart 31.05
Conversion of a vessel to a tank vessel, application for 31.01–20
Crew accommodations 31.10–45
During trial trip 31.10–40
General requirements ..... Subpart 31.01
Initial, scope of 31.01–5
Interior communications system 32.30–10
Lagged tanks 36.30–1
Lifesaving appliances 33.01–1, 33.01–25
New tank vessel 31.01–20, 31.10–5
Plans and specifications 31.10–5
Recognized classification society 31.10–1
Required before making repairs 35.01–1
Required, liquefied, petroleum gas tanks 38.25–1
Required on new tank vessels 31.01–1
Safety valves 38.25–10, 39.25–10
Two years 31.10–15, 31.10–17
Inspection and certification of cargo gear 31.10–16
Inspection and test, periodic, of independent cargo tanks 38.25, 39.25
Inspection of cargo gear:
Additions to gear 31.37–60
Advance notice that cargo gear testing is desired 31.37–80
Alterations, renewals, or repairs of cargo gear 31.37–65
Annealing 31.37–55
Cargo gear plans 31.37–15
Certification 31.10–16
Definitions of terms 31.37–3
Dismantling or disassembling 31.37–3
Factors of safety 31.37–25

Inspection of cargo gear—Continued
Loose gear certificates and tests 31.37–30
Marking of booms and cranes 31.37–45
Proof test of cargo gear as a unit 31.37–40
Records 31.37–75
Responsibility for conducting required tests and examinations 31.37–85
Responsibility of ship's officer for inspection of cargo gear 31.37–70
Safe working load 31.37–3
Tests and examinations of shipboard cargo gear 31.37–5
Thorough examination 31.37–3
Ton 31.37–3
When made 31.37–1
Wire rope 31.37–35
Inspector 30.10–43, 31.01–10
Installation of cargo tanks 38.05–10
Installation of internal combustion engines 32.35–5
Installations made during the Unlimited National Emergency 32.20–1, 32.45–10
Installation contracted for prior to May 26, 1965 ..... 34.10–90
Installations, lifeboat, weight test of 33.01–27
Internal combustion installations, fire extinguishing systems for 34.05–5
International voyage 30.01–6
Interior communications system:
Bell signals between engineroom and pilothouse 32.30–5
Inspection of 32.30–10
Telegraph systems 32.30–10
Telephone equipment 32.30–1
Voice tubes 32.30–1
Issuance of certificates of inspection 31.05–1

J

Jacknife, lifeboat equipment 33.15–1, 33.15–10

L

Ladders 33.15–1, 33.15–10, 33.20–1, 35.01–20
Lagging for independent cargo tanks 38.05–20
Lakes, bays and sounds 30.10–41
Lamp and paintrooms:
Fire extinguishing system for 34.05–5
Fireproofing of 32.85–1
Lamp, signaling 33.50
Lantern, lifeboat equipment 33.15–1, 33.15–5, 33.15–10, 33.15–15
Launching of lifeboats and liferafts 33.20–1, 33.20–10, 33.20–15
Licensed officers required 31.15–1
Lifeboat drills 35.10–5
Lifeboat, davit falls 33.10–10, 33.20–5
Lifeboats:
For barges 33.05–5, 33.05–15
For tankships 33.05–1
For tank vessels 33.05–20, 33.05–25
Lifeboatmen required 33.30–5
Maintenance 33.25–20
Manning ..... Subpart 33.30
Numbering and marking 33.25–5
Overhauling 33.25–15
Replacement of 33.10–15
Stowage of 33.20–1, 33.20–15
Type required 33.10–1
Weight test of lifeboat installations 33.01–27
Wooden 33.05–35
Lifeboat, liferaft or buoyant apparatus equipment; general 33.15–1
Lifeboat, liferaft and buoyant apparatus equipment on tank vessels contracted for prior to May 26, 1965 ..... 33.15–90

Lifeboats and liferafts for tankships; ocean and coastwise; construction or conversion of which was started prior to November 19, 1952 ..... 33.05–1
Lifeboat installations, weight test of 33.01–27
Lifeboats and liferafts for tankships; ocean and coastwise; construction or conversion of which was started on or after November 19, 1952, and prior to May 26, 1965—T/OC 33.05–2
Lifeboats and liferafts for tankships; ocean and coastwise; construction or conversion of which was started on or after May 26, 1965 ..... 33.05–3
Life buoys:
Location, distribution and securing 33.40–15
Number required on tank barge 33.40–10
Number required on tankship 33.40–1, 33.40–5
Lifeline, lifeboat equipment 33.15–1, 33.15–10, 33.15–15
Lifeline, liferaft equipment 33.15–20, 33.15–25
Lifelines 32.01–5
Life preservers:
Distribution and stowage 33.35–5
Inspections 33.35–10
Lifeboat equipment 33.15–1, 33.15–10, 33.15–15
Number and type required 33.15–5, 33.35–1
Specifications 33.35–15
Liferafts:
For tank vessels 33.05–20, 33.05–25
Maintenance 33.25–20
Manning ..... Subpart 33.30
Marking 33.25–10
Overhauling 33.25–15
Substitution of inflatable liferaft for others 33.07
Lifesaving appliances, approval of 33.01–30
Lifesaving equipment:
Construction 33.01–5
Responsibility of master 33.01–15
Lights and shapes, navigation 32.15–3
Lights, flashing the ray of 35.20–30
Light, unauthorized 35.20–25
Line, life 32.01–5, 33.15–1, 33.15–5, 33.15–10, 33.15–15, 33.15–20, 33.20–1
Line-throwing appliances:
Accessibility 33.55–5
Drills 35.10–1
Equipment for 33.55–10
Requirement of 33.55–1
Service recommendation 33.55–15
Liquid, flammable 30.10–22
Liquid level gaging devices 32.20–20, 38.10–1, 38.10–20, 39.10–15
Liquids having lethal characteristics ..... Part 39
Liquefied flammable gas 30.10–39
Cargo hose 38.15–15
Cargo piping 38.10–10
Certificate of inspection 38.05–5
Design and construction of cargo tanks 38.05–2
Design and construction of nonpressure vessel type cargo tanks 38.05–4
Design and construction of pressure vessel type cargo tanks 38.05–3
Design and construction of vessels, general 38.05–1
Electrical installations 38.15–15
Filling and discharge pipes 38.05–25
Filling of tanks 38.15–1
Installation of cargo tanks 38.05–10
Insulation 38.05–20
Leak detection systems 38.15–10
Liquid level gaging devices 38.10–20
Markings 38.05–5
Refrigerated systems 38.05–25
Remote shutdowns 38.15–20
Removal of defective tanks 38.25–5
Safety relief valves 38.25–10

Liquefied flammable gas—Continued
Safety relief valves for nonpressure vessel type tanks 38.10–16
Safety relief valves for pressure vessel type tanks 38.10–15
Tests and inspections 38.25–1
Valves, fittings, and accessories 38.10–1
Ventilation 38.20–10
Venting 38.20–1, 38.20–5, 39.20–2
Transportation of ..... Part 38
Scope of regulations 38.01–1
Transportation of portable cylinders or portable tanks containing or having previously contained liquefied flammable gases in dry cargo spaces 38.01–2
Living quarters 32.60–25, 32.65–25
Load lines ..... Subpart 31.25
Locker, lifeboat equipment 33.15–1
Logbook entries:
Actions required to be logged 35.07–10
Application 35.07–1
Draft of tank ship 35.20–5
Fire and lifeboat drills 35.10–5
Fuel oil requirements 35.25–10
Logbooks and records 35.07–5
Official log entries 35.07–15
Steering gear tests 35.20–10

M

Machinery spaces, fire extinguishing systems for 34.05–5
Magazine chest 33.01–35
Machinery, main and auxiliary:
Accident report by chief engineer 35.15–5
Construction 32.35–1
Design 32.35–1
Examination by engineer 35.25–1
Installation of internal combustion engines 32.35–5
Steering apparatus 32.35–10
Maneuvering characteristics, display of 35.20–4C
Manning:
Lifeboat Carrying a Radiotelegraph and/or Searchlight 30.30–15
Motor-Propelled Lifeboat 33.30–10
Tank vessels 31.15, 35.35–1
Marine engineering and material specifications ..... Subpart 31.30
Marine inspector, authority of 31.01–10
Markings:
Booms and cranes 31.37–45
CO_2 alarm 35.40–7
Draft marks 32.05–1
Emergency breathing apparatus 35.40–20
Emergency lights 35.40–6
Fire and emergency equipment ..... Subpart 35.40
Firehose stations 35.40–15
General alarm bell 35.40–5
General alarm bell switch 35.40–1
Lifeboats 33.25–15
Liferafts 33.25–10
Lifesaving equipment 35.40–40
Portable fire extinguishers 35.40–25
Steam, foam or CO_2 apparatus 35.40–10
Steering station 35.40–35
Tanks for combustible liquids with lethal characteristics 39.05–5
Tanks for liquefied flammable gas, marking of 38.05–5
Vessel's name 32.05–10, 32.05–15
Vessel's name on equipment 32.05–5
Mast and sails, lifeboat equipment 33.15–1

Master:
Casualty or accident report 35.15–1
Licensed officer 35.05–1
Required on tankships 35.05–5
Station bills and muster list 35.10–1
Master's and officer's responsibility 35.20–20
Matches:
Lifeboat equipment 33.15–1, 33.15–5, 33.15–10, 33.15–15
Liferaft equipment 33.15–20
Use of 35.30–5
Material specifications ..... Subpart 31.30
Material, scantlings, and workmanship 32.60–1, 32.65–1
Means of escape 32.01–1
Motion picture film 35.30–45
Muster list 35.10–1

N

National Fire Protection Association 35.01–1
Navigation equipment:
Anchors for seagoing barges 32.15–15
Fog sound signal devices 32.15–1
Sounding machines 32.15–10
Whistles 32.15–5
Navigation Lights and Shapes 32.15–3
New tank vessels, inspection of 31.10–5
New tank vessels, plans for inspection of ..... 31.10–5(a)
Notice to mariners 35.20–1
Nuclear energy, application to vessels concerning 30.01–25
Nuclear energy, radioactive material, and nuclear vessel:
Application of regulations 30.01–25
Definitions 30.10–44
Nuclear vessels, special construction, arrangement, and other provisions for ..... Part 37
Application ..... Subpart 37.01
Atomic Energy Commission safety requirements 37.15–5
Design and construction ..... Subpart 37.05
Location of nuclear systems components 37.05–10
Special requirements 37.05–1
Subdivision and stability 37.05–5
Inspection and certification ..... Subpart 37.10
Additional requirements 37.10–5
Annual inspection and certification 37.10–1
International convention certification 37.10–15
Operations ..... Subpart 37.20
Operating manual 37.20–1
Special operating procedures 37.20–5
Radiation protection 37.15–1
Safety assessment 37.15–10
Nuclear vessel, definition 30.10–44

O

Oars:
Lifeboat equipment 33.15–1, 33.15–5, 33.15–10, 33.15–15
Liferaft equipment 33.15–20, 33.15–25
Ocean, definition 30.10–45
Officer in Charge, Marine Inspection 30.10–47
Officers required on tank vessels ..... Subpart 35.05
Open hopper type barges 35.01–45
Oxygen breathing apparatus, marking of 35.40–20

P

Painter, lifeboat equipment 33.15–1, 33.15–5, 33.15–10, 33.15–15
Paintrooms ..... Subparts 32.85, 34.05–5

Parachute flare distress signals, lifeboat equipment 33.15–1, 33.15–5, 33.15–10, 33.45–5
Penalties for violations of regulations 30.20–10
Period covered by certificate of inspection 31.05–10
Permit, definition 30.10–49
Permit to proceed to another port for repairs 31.10–35
Person in charge of each lifeboat and liferaft 33.30–1, 33.30–3
Pilot ladders 35.01–20
Pilot required on tankships 35.05–10
Piping:
  Fire extinguishing systems 34.10–10, 34.10–15; 34.15–15, 34.17–15, 34.20–15
Piping, bilge 32.52–5
Piping, cargo ..... Subpart 32.50
  Cargo tanks 38.10–10, 39.10–5
  Steering apparatus 32.35–10
Placard of livesaving signals and breeches buoy instructions ..... Subpart 35.12
  Application 35.12–1
  Availability 35.12–5
Plans, Display of 35.10–3
Plans for inspection of new tank vessels ..... 31.10–5(a)
Plugs and pumps, lifeboat equipment 33.15–1
Plugs, lifeboat equipment 33.15–1, 33.15–5, 33.15–10
Poisons, transportation of ..... Part 39
Portable and semiportable extinguishers 34.05–10
Portable tanks—interpretive rulings 30.01–20
Portable electrical equipment 35.30–30
Posting of certificate of inspection 31.05–5
Posting placards containing instructions for launching and inflating inflatable liferafts 35.10–9
Power-operated industrial trucks:
  Alternates 35.70–3
  Application 35.70–1
  Approved power-operated industrial trucks 35.70–7
  Charging or replacing batteries 35.70–30
  Definitions of terms used in subpart 35.70–5
  Permissible areas of use 35.70–10
  Refueling 35.70–25
  Special operating conditions 35.70–20
  Stowage of trucks aboard a vessel 35.70–35
  Types of cargo permitted to be handled by trucks 35.70–15
  Vessels 35.70–1
Pressure-vacuum relief valve 30.10–55, 32.20–5
Prevention of oil pollution 35.01–40
Proof test of cargo gear as a unit 31.37–40
Propellers, lifeboat equipment 33.15–1, 33.15–5
Propylene oxide:
  Accessories, fittings, and valves 40.10–40
  Arrangement of pressure-vessel type cargo tanks 40.10–10
  Bonding, electrical 40.10–80
  Cargo hose 40.10–75
  Cargo piping 40.10–55
  Construction of pressure-vessel type cargo tanks 40.10–10
  Design of pressure-vessel type cargo tanks 40.10–10
  Electrical bonding 40.10–80
  Filling and discharge pipes 40.10–50
  Filling density 40.10–65
  Fittings, valves, and accessories 40.10–40
  General 40.10–1
  Hose, cargo 40.10–75
  How propylene oxide may be carried 40.10–5
  Installation of cargo tanks 40.10–20
  Liquid level gaging devices 40.10–45
  Piping, cargo 40.10–55
  Relief valves, safety 40.10–60
  Safety relief valves 40.10–60

Propylene oxide—Continued
Special cargo handling requirements 40.10–83
Tank vessel certification and other cargoes 40.10–2
Tests and inspection 40.10–87
Valves, fittings, and accessories 40.10–40
Valves, safety relief 40.10–60
Venting 40.10–69
Ventilation 40.10–73
Warning signs and information cards 40.10–85
Protection for personnel 36.05–10
Provisions, lifeboat equipment 33.15–1, 33.15–10
Pumprooms:
Controls 39.15–10
Electrical installations 32.60–20
Fire extinguishing systems for 34.05–5
Lighting 32.60–20
Location of 32.60–20, 32.65–20
Requirements for 32.70–15, 32.70–20
Ventilation 32.60–20, 36.20–5
Pumps, bilge 32.52–1
Pumps, cargo ..... Subpart 32.50

Q

Quarters, living 32.60–25, 32.65–25

R

Radio apparatus for lifeboats 35.10–20
Radio room warning sign 35.30–1
Radio direction finder 32.15–25
Radioactive material, nuclear energy, and nuclear vessel 30.10–44
Radiobeacon, emergency position indicating ..... Subpart 33.60, 35.10–25
Radiotelegraph and radiotelephone 32.15–20
Rails 32.01–10
Reckless or negligent operation prohibited by law 35.01–30
Recognized classification society, definition 30.10–57
Refrigerated systems 38.05–25
Registers regarding shipboard cargo gear ..... 31.10–16, Subpart 31.37
Regulations:
Application of 30.01–5
Authority vested in Commandant 30.01–1
Effective date 30.01–15
Explanation of vessel description 30.01–5
Governing alterations and repairs 30.01–10
Liquefied flammable gas ..... Part 38
Liquids having lethal characteristics ..... Part 39
Scope of 36.01–1
Reid vapor pressure, definition 30.10–59
Reinspection 31.10–17
Release, Hydraulic 33.20–20
Relief valves:
Cargo pump 36.10–1
Cargo pump, testing of 35.35–70
Cargo tanks 38.10–15, 39.10–10
Repairs:
Application of regulations 30.01–10
Firefighting equipment 35.01–35
Permit to proceed to another port 31.10–35
Inspection before making 35.01–1
Involving hot work 35.01–1
Lifesaving appliances 33.01–20
Reports of engineers 35.25–5
Reports and notice of certain hazardous materials incidents 35.15–13
Required equipment for lifeboats 33.15–5

Requirements for life preservers 33.35–15
Right of appeal 30.20–50
Rivers, definition 30.10–61
Rowlocks:
  Lifeboat equipment 3315–1, 33.15–5, 33.15–10
  Liferaft equipment 33.15–20
Rudder:
  Indicators 35.40–35
  Lifeboat equipment 33.15–1, 33.15–5, 33.15–10
Rules of the Road 30.10–62

S

Safety requirements:
  Guards at dangerous places 32.01–15
  Lifelines 32.01–5
  Means of escape 32.01–1
  Rails 32.01–10
Safety relief valves for cargo tanks 38.10–15, 38.10–16, 39.10–10
Safety rules ..... Subpart 35.30
Safety valve seal, breaking of 35.25–20
Sand ..... 34.05–15, Subpart 34.55
Sanitary inspection by master and chief engineer 35.01–5
Scantlings, material and workmanship 32.60–1, 32.65–5
Scuppers, closing of 35.35–10
Sea anchor, lifeboat equipment 33.15–1, 33.15–5, 33.15–10, 33.15–15
Sea anchor, liferaft equipment 33.15–20
Sea chests, examination of 31.10–20
Sea strainers, examination of 31.10–20
Sea valves, closing of 35.35–10
Segregation of cargo 32.60–10, 32.60–15
Segregation of spaces containing the emergency source of electric power 32.60–45
Shapes and Lights, Navigation 32.15–3
Shipboard cargo gear, certificates or registers ..... 31.10–16 Subpart 31.37
Shipping papers required 35.01–10
Signaling lamp 33.50–1
Signaling mirrors, lifeboat equipment 33.15–1, 33.15–10
Signals, distress 33.45–1
Skates, lifeboat launching 33.20–1
Sleeping quarters 32.40–1
Smoking, safety rules 35.30–5
Sounding machines 32.15–10
Spark arrester 30.10–63
Spark producing devices 35.30–35
Spray nozzles 34.10–10
Specifications, material ..... Subpart 31.30
Special construction, arrangement, and other provisions for carrying certain flammable or combustible dangerous cargoes in bulk ..... Part 40
  Application, general 40.01–1
  Cargo hose 40.05–75
  Cargo piping 40.05–55
  Cooling systems 40.05–35
  Design, construction, and arrangement of cargo tanks 40.05–10
  Effective date 40.01–5
  Electrical bonding 40.05–80
  Ethylene oxide ..... Subpart 40.05
  Filling and discharge pipes 40.05–50
  Filling density 40.05–65
  How ethylene oxide may be carried 40.05–5
  Information board 40.05–85
  Installation of cargo tanks 40.05–20
  Insulation 40.05–30
  Liquid level gaging devices 40.05–45
  Safety relief valves 40.05–60
  Special cargo handling requirements 40.05–83
  Tank vessel certification and other cargoes 40.05–2

Special construction, arrangement, etc.—Continued
Tests and inspections 40.05–87
Valves, fittings, and accessories 40.05–40
Venting 40.05–69
Ventilation 40.05–73
Special operating requirements ..... Subpart 35.01
Special construction, arrangement, and other provisions for nuclear vessels Part 37
Special operating requirements for tank barges carrying certain dangerous bulk cargoes 35.01–50
Stability requirements 31.10–30
Station bills required 35.10–1
Steam fire extinguishing systems 35.40–10
Steel hull tank vessels ..... Subpart 32.70
Steam, carrying of excess 35.25–15
Steam smothering system ..... Subpart 34.13
Steering apparatus on tank vessel 32.35–10
Steering gear, instruction for changing 35.40–30
Steering gear test 35.20–10
Steering orders 35.20–15
Steering orders, marking 35.40–35
Storm oil, lifeboat equipment 33.15–1, 33.15–5, 33.15–10
Storm oil, liferaft equipment 33.15–20
Stowage of distress signals 33.45–10
Stowage of package and general cargo 35.35–55
Stowage of lifeboat equipment 33.15–5, 33.15–10, 33.15–15
Subdivision of cargo spaces 32.60–5, 32.65–10
Substitution of inflatable liferafts for other liferafts, lifefloats, and buoyant apparatus on certain vessels not on an international voyage ..... Subpart 33.07

T

Tank barge:
Carrying bulk cargoes having dangerous characteristics in addition to flammability or combustibility 31.15–6
Definition 30.10–65
Lifeboat equipment 33.15–15
Watchman for 35.05–15
Tankerman, definition 30.10–71
Tankship:
Definition 30.10–67
Licensed officers and crew 35.05–1
Lifeboat equipment for 33.15–1, 33.15–5, 33.15–10, 33.15–15
Liferaft equipment for 33.15–20, 33.15–25
Master 35.05–5
Pilot 35.05–10
Tanks, portable—interpretive rulings 30.01–20
Tank vessel:
Definition 30.10–69
Laid up or dismantled 31.01–1
Telegraph equipment, engine order 32.30–10
Telephone equipment, sound powered 32.30–1
Test, weight, of lifeboat installations 33.01–27
Testing of firefighting equipment 31.10–19
Toilet facilities 32.40–1
Towing vessels 31.15–10, 35.35–45
Trial trip inspection 31.10–40

U

Ullage holes, safety rules regarding 35.30–10

V

Valves:
Back pressure check type 38.10–1, 38.10–5
Excess flow 38.10–1, 38.10–5

Valves—Continued
Liquefied flammable gas 38.10–1, 38.10–5
Pressure-vacuum relief 30.10–55, 32.20–5
Relief 35.35–70, 38.10–1, 38.10–10, 38.10–15, 39.10–10
Shutoff 38.10–1, 39.10–1
Ventilation and venting:
Cargo tanks ..... Subpart 32.55
Cargo tanks, independent ..... Subparts 38.20, 39.20
Cofferdams ..... Subpart 32.55
Flame screen 36.20–1
Hold spaces 32.55–15
Pumproom 36.20–5
Tank ships with a keel laying date on or after January 1, 1975 ..... 32.55–50
Vessels coming alongside 35.35–42
Vessels converted to tank vessels 31.10–10
Vessel's name on equipment 35.40–40
Vessel's name 32.05–10, 32.05–15
Vessel, nuclear, nuclear energy, and radioactive material 30.10–44
Voice tubes 32.30–1
Vinyl chloride, carriage of ..... Subpart 40.15

W

Warning signs 35.30–1, 39.15–1
Warning signals and signs 35.30–1
Washing facilities 32.40–1
Watchman for tank barge 35.05–15
Water light, liferaft equipment 33.15–20
Water spray extinguishing systems, details ..... Subpart 34.25
Application 34.25–1
Capacity and arrangement 34.25–5
Controls 34.25–10
Installations contracted for prior to January 1, 1964 ..... 34.25–90
Piping 34.25–15
Spray nozzles 34.25–20
Water spray systems 35.40–18
Waters, travel permitted on ..... Subpart 31.20
Welding repairs 35.01–1
Weight test of lifeboat installations 33.01–27
Whistles 32.15–5
Whistle signals for drills 35.10–5
Whistling, unnecessary 35.20–35
Wire rope 31.37–35, 31.37–50
Winches, lifeboat 33.10–5
Work vests:
Application of 35.03–1
Approved unicellular plastic foam 35.03–5
Use 35.03–10
Shipboard stowage 35.03–15
Shipboard inspection 35.03–20
Workmanship, material, and scantlings 32.60–1, 32.65–5

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